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Mr. W. WESTON, our San Juan correspondent, sails to-day in the City of Berlin for England. He expects to be absent three or four weeks.

THE NEW YORK AND PENNSYLVANIA BOUNDARY.

The act passed May 20th, 1880, by the Legislature of New York recites that the examination made by the Regents of the University, under the act of 1875, has proved that the monuments on the boundary-lines between this State and Pennsylvania and New Jersey do not conform in all cases to the verbal descriptions of the said lines, and proceeds to declare that the actual lines, as determined by the monuments and heretofore recognized by the States, are the true boundaries. The Regents are empowered to appoint commissioners from their number to meet similar commissioners from the two other States, to ascertain and agree upon the lines as originally marked with monuments, and to renew, replace, and add to the monuments.

Messrs. PIERSON, LEAVENWORTH, and DEPEW, the New York Commissioners, have encountered an unexpected difficulty in the discharge of this duty. The final report, under the Act of 1875, transmitted to the Legislature in March, 1880, contained the report of progress for 1879 of Major H. W. CLARKE, the surveyor on the part of New York. As we had occasion to show a year or two ago, in commenting upon an earlier report of Major CLARKE, the reconnoissance of the boundary which he has made proves that the work was undertaken none too soon. The ingenuity and perseverance with which he has rediscovered and restored a good part of the boundary are worthy of praise ; but the clearness with which he has explained the difficulties encountered is now utilized by the Pennsylvania Board in an argument for an entirely new departure—namely, the establishment with astronomical correctness of a boundary in accordance with the description in the statutes, and in disregard of the irregularities of the existing line.

The latest report of the New York Commissioners, just published, contains the correspondence on the subject. The Pennsylvanians emphasize the imperfections and gaps in the present line, the destruction and removal of monuments, etc., and urge that this opportunity be taken to draw a true parallel of latitude where such is called for, and a true meridian for the score of miles requiring a meridian boundary. The New Yorkers reply, first, that the Legislature of New York has distinctly commanded them not to improve but to discover and retain the actual line already marked; secondly, that this is in fact, according to many decisions of courts, and according to invariable custom, the legal boundary ; and they give in support of their views the opinion of eminent counsel and letters from Major CLARKE and from Director JAMES T. GARDNER of the State Topographical Survey.

Our Commissioners are clearly right in their position ; and it seems equally clear to us that no adequately compensatory benefit is to be derived from such a change as the Pennsylvania Board proposes. No one doubts, whatever may be the situation under existing statutes, that the Legislatures of the two States have the power to make a new boundary if they choose to go through the necessary formalities. But supposing it could be done, what would be the good of it? The notion that a "true" parallel of latitude, astronomically determined, would be more "scientific," or more permanent, is a crude fantasy, like that which led to the establishment of the French meter. It would be so handy to have a unit bearing a definite relation to the arc of a meridian quadrant ! But every body knows that the fraction was incorrectly determined, and that the standard meter is not a geodetic or astronomic observation, but a brass stick. The monuments of a crooked boundary can be just as exactly fixed, referred to other stations in triangulation, and thus made permanently recoverable as the monuments of an alleged true parallel.

But the conclusive argument against the change is found in the fact that in many instances the boundaries of farms and village lots have been laid along the present line. To rectify it astronomically would be to produce confusion and hardship among land-owners. Major CLARKE mentions cases in which a "true" parallel would cut houses in two. Those cases in which such a line would relieve parties from existing inconvenience are very few indeed. So far as the fancy of our Keystone friends for a straight line is concerned, they should bear in mind that the parallel for which they yearn would give them a crooked surface line wherever it crossed inequalities of the ground. In fact, the true parallel can only be successfully traced in the imagination or in the sky ; and in one of these congenial localities we respectfully suggest that they had better leave it. *

CARBONIC OXIDE.

The article translated by Professor EGLESTON and published by us last week, concerning a case of supposed poisoning, possibly by carbonic oxide, is interesting and valuable, but scarcely conclusive. In practice at blast-furnaces, however, where the tunnel-head gases are so heavily charged with carbonic oxide as to be combustible, and around gas-producers, the products of which contain still more of it, it is found that the effects of poisoning, even to partial loss of consciousness, are not permanent. Sulphuric ether, drunk in water, is a usual and excellent restorative ; and after a day's rest, the workman is completely recovered. It is common for men to work, when necessarily exposed to the gas, until they feel dizzy or even fall. Of course, they should be promptly relieved when the first symptoms appear ; but with precaution in this respect, we think the danger is not so great as much of the talk about it would indicate.

A correspondent calls attention in another column to the assumption by M. MEURGEY, that certain effects on coal-miners, after explosions of fire-damp, are due to carbonic oxide. The point is well taken ; and it is further strengthened by the improbability of the presence of carbonic oxide in "after-damp." We know of no evidence that this gas is ever produced in coal-mines, except by slow and imperfect combustion of coal.

As to the effect of this ingredient upon the illuminating-gas made from "water-gas," there is no doubt that it has been exaggerated by interested parties. A man who goes to bed after blowing out, instead of turning off, the gas-flame in his room, will die as certainly and as comfortably from coal-gas as from water-gas. The slow effect of a minute leakage of either would be poisonous. The mortality of Baltimore, which now, we believe, uses water-gas exclusively, shows no increase from that source. On the contrary, there should be a change in the other direction. The steady deterioration of the atmosphere in close rooms by the combustion of gas for light is by far the most pressing evil connected with its use. Now, water-gas requires, for the same amount of light, less oxygen than coal-gas. Hence it should vitiate the air less. That this is actually felt to be the case, there is testimony to show ; and we consider water-gas to be unquestionably a sanitary as well as an economical improvement. *

THE UNITED STATES GEOLOGICAL SURVEY.

The resignation of Mr. CLARENCE KING as the head of the National Geological Survey, and the appointment of Major J. W. POWELL as his successor by President GARFIELD, come rather suddenly upon the public. It is difficult to escape the suspicion that the affair has been quietly managed in this way to avoid the discussion which might have arisen concerning the relative merits of various candidates. Such a discussion there was before Mr. KING himself was appointed ; and, though it had its disagreeable features, it produced, on the whole, a salutary effect, enabling the appointee to take his place with the assured support of the majority of scientific and professional men. We understood at that time that his acceptance of the position implied a pledge to retain it until the work of the survey should be completely organized and running

smoothly. We regret very much that Mr. KING has felt called upon to lay down this responsibility. The task was one which he seemed peculiarly fitted to perform. In our judgment, it was a more important one than any independent and private scientific investigation which it would hinder Mr. KING from pursuing. If he was going to resign it so soon, it is a pity he took it at all.

These remarks have but slight bearing on the question of the fitness of the new Director. The principal doubt in that direction is simply, whether Major POWELL will receive a hearty support from the scientific public. Personally, he is not merely unobjectionable, but, as far as we know, generally acceptable. We hope and believe that his appointment will not revive any of the jealousies which were laid to rest by that of Mr. KING. Professionally, he has had, like his predecessor, long experience in the direction of field-work, and possesses an extensive knowledge of the public domain in the West. His report on the exploration of the Colorado River, which appeared some years ago, contained much interesting topographical and geological material, clothed in somewhat superabundant rhetoric. His paper on the Arid Lands of the West was able and effective. His assistants have done excellent work, and bear strong testimony to his good judgment and executive skill as a Director. While we can not regard him with as much enthusiasm as we felt for Mr. KING, we may freely confess that, if he takes the place with a determination to do his life-work in it, and make his reputation out of it, he will be preferable to any merely temporary occupant. *

NEW PUBLICATIONS.

COAL AND IRON IN SOUTHERN OHIO. *The Mineral Resources of the Hocking Valley: Being an Account of its Coals, Iron-Ores, Blast-Furnaces, and Railroads. With a Map. By* T. STERRY HUNT, LL.D. Boston: S. E. Cassino. 1881. 8vo, 152 pp. Price, 75 cents.

Our readers, and the members of the Institute of Mining Engineers, will remember that in 1874 Dr. HUNT published an account of this region. The present volume may perhaps be said to have grown out of that one; but it is much more than a mere new edition with additions. It constitutes a complete and symmetrical treatise upon the general and economic geology, the metallurgical industries, and the natural and artificial facilities of the Hocking Valley. An inspection of its pages shows that the prosperity of that region is still rather a matter of prophecy than of accomplished fact. The output of coal has indeed more than doubled since 1873, having been about 1,200,000 tons in that year, and about 2,800,000 tons in 1880. The product of pig-iron from 15 furnaces is estimated to have been in 1880 about 102,000 gross tons. But this is trifling, compared with what Dr. HUNT predicted in 1874, and now repeats, concerning the possible future of this industry in the Hocking Valley. In the course of his discussion, he gives a very neat and clear statement of the principles of the manufacture of pig-iron, and points out with accurate insight the result upon that business of the recent technical triumph of the "basic process" in the production of Bessemer steel. By that process, the very purest of steel is made from irons containing over 2 per cent of phosphorus. In other words, vast supplies of phosphoric ores and of mill-cinder (hitherto the *bête noir* of the consumer) will become available as crude material; and the domination of Spain and Algiers on the one hand, and Lake Superior on the other, will come to an end. The cheap iron of such regions as the Hocking Valley will then find an increasing demand. *

MATERIALS AND CONSTRUCTION: *A Theoretical and Practical Treatise on the Strains, Designing and Erection of Works of Construction, by* FRANCIS CAMPIN, C.E. London: Crosby, Lockwood & Co. 1881. 12mo, 249 pp.

Mr. CAMPIN, as past president of the Civil and Mechanical Engineers' Society, and author of *Iron Bridges, Girders, and Roofs,* and Mechanical *Engineering*, is good authority on professional subjects; and in this little manual he has produced a useful compendium of rules, principles, and empirical results. The higher mathematics are avoided, and the theoretical discussions are made as clear as the necessary brevity will permit. Some attention is given to the graphic method of determining strains; and one or two examples, worked out by this method, are furnished as guides to its use. On practical questions, such as specifications and tests, Mr. CAMPIN makes many sensible suggestions. The following sentence, for instance, is an epitome of that obvious wisdom which theorists are too apt to overlook: "It is useless to specify that which can not be obtained; but care must be taken to calculate the structure for materials of such strength as may reasonably be had, and the specification drawn accordingly and rigorously enforced." Constructors are only too familiar with the evils arising from whimsical rigor in the specification, making the strict enforcement impracticable. *

ARCHIV FUER PRACTISCHE GEOLOGIE (*Archives of Practical Geology*). *Issued by* F. POSEPNY, *Royal Imperial Mining Councillor.* VOL. I. *With ten plates.* Vienna: Alfred Hölder. 1881. 8vo, 637 pp.

Not long ago, we expressed the hope that POSEPNY, for many years an active investigator of mining districts and ore-deposits, since a recent date professor of economic geology at the school of Pribram, and generally recognized as one of the foremost authorities in this department, would give to the public somewhat more of the results of his labors than his monographs and reports, however numerous and able, contain. What we want from him is an original and systematic treatise on ore-deposits, embodying a new and, if possible, a natural classification. This, we think, will be pretty sure to come, if he lives and lectures on the subject for a few years. Almost without exception, the great text-books proceed from lecture-rooms. The incidental collection of materials, the annual repetition of discussions and explanations, the gradual perfection of demonstrations, illustrations, and definitions, bring it to pass, almost insensibly and without special extra labor, that the lecture-notes become a book-manuscript ready for the printer.

But we are thankful for the contribution to technical literature which lies before us, though it is not, in form, a text-book on the general theme of which POSEPNY is so well qualified to speak. The nature of the *Archiv* will be at once understood by all who recall tha brilliant series of papers, issued by COTTA, under the name of *Gangstudien* (vein-studies). The vein-classification of WEISSENBACH, which has dominated the professional world ever since; the ingenious (and largely well-founded) speculations and hypotheses of LIEBER, concerning the gold, itacolumite, etc., of the Southern States; and other epoch-making essays, including, if we are not mistaken, COTTA'S own systematic *Erzlagerstättenlehre*, first saw the light in the *Gangstudien*. It was an irregular periodical, or series of papers, published when convenient, in uniform style, so that they could be bound together. POSEPNY'S *Archiv*, as we gather from his preface, is to be of the same class: only the first volume is published complete, because the material was on hand. The next is to appear in installments of no fixed size or periodicity; and of its contents no preliminary notice is given.

Turning now to the book before us, we find that, with one exception, the essays it contains are from POSEPNY'S own hand. The exception is Professor HOEFER'S discussion of the gold and silver product of Carinthia during the sixteenth century. The German statistician, Dr. SOETBEER, in a recent article on the history of the gold and silver production of the world, mentioned a current story (much quoted by the promoters of new mining enterprises) that the gold product of Carinthia in the sixteenth century averaged 14,000 marks (about 3920 kilograms) per annum; and added that this seemed to rest upon a misunderstanding somewhere, since this figure was much too great for probable accuracy. To investigate this question, and thus complete with trustworthy data the Austro-Hungariantable of SOETBEER, is the purpose of HOEFER'S paper. It is a model of patient inquiry and historical restoration, and proves that the product of gold in Carinthia for the century ending with 1620 was 11,396 kilos, worth 31,794,840 German Imperial marks (not to be confounded with the old mark of weight, which is about 0·28 kilos), or in round numbers, $7,500,000 of our money. This makes the average only $75,000 per annum, or about 3 per cent of the fabulous amount hitherto accepted. The maximum production, attained from 1545 to 1560, averaged 219 kilos per annum, or less than 6 per cent of the story. The Old World does not seem, in the light of these figures, to fall behind the New in the matter of exaggerated mining reports!

Professor POSEPNY'S contributions to this volume comprise elaborate accounts of old gold, silver, and copper mining districts in Tyrol, Salzburg, etc., and a final essay on the relations between geology and mining. In the latter, we get a glimpse of the author's views on the subject of ore-deposits. He expresses, as he has often done before, his dissatisfaction with the classification of the "Saxon school," which, based as it is on the accidental form and position rather than the essential nature or structure, of the special deposit, has in his opinion misled the course of investigation and hindered the progress of knowledge. The system, he says, was premature; and the attempt to tack to it, or intercalate in it phenomena which it did not at first embrace, has made the matter worse. Hence, he continues, it is necessary to go back to simple and thorough observations, apart from the system; to collect trustworthy data, revising the older ones, and leaving systems out of sight. For the last ten years, he has been pursuing this plan, and publishing both his descriptions and his deductions in single articles. In GRODEGG'S new text-book on ore-deposits he says these deductions are attempted to be represented in a schedule of "types."

We do not purpose at this time to debate the view here indicated; and we are conscious that habit, accustoming us to the illogical, incomplete, but practically convenient "Saxon" classification, may have bred in us a prejudice which time and study must remove; but we take the liberty of saying, nevertheless, that the "types" of GRODEGG seem unlikely to replace, for practical purposes, the "classes" of WERNER, WEISSENBACH, and COTTA, though for some uses, and particularly those of theoretical science, they are better.

Professor POSEPNY does not fail to recognize the energy and intelligence shown in the United States, in the prosecution of geological surveys, with special reference to mineral resources; in the maintenance of mining schools; and particularly in the plan and the proceedings of our Institute of Mining Engineers, with its "wander-meetings," which he earnestly commends for imitation by his own countrymen.

But we must for the present turn from this interesting survey of the

general field, to give a brief notice to the special essays contained in the volume.

The first, longest, and perhaps most important, of these is the treatise on the gold mines of the High Tauern, with which the *Archiv* begins. This ancient seat of industry, along the sides of the Tauern-chain, in Salzburg, Carinthia, and Tyrol, presents representatives of one of the two great classes of gold-occurrences, namely, those which appear in old crystalline schists. The other class, which seems to be connected with later eruptive rocks, is represented in Hungary and Transylvania. No doubt this country can show both; but our principal and characteristic gold mines belong to the first class; and hence this thorough discussion of a region belonging to that class is particularly useful to us. There are in fact so many passages in this discussion, calculated to throw light upon our American problems and conditions, that we must leave its further consideration for another article, in which we can speak more fully concerning it. *

THE EAGLE RIVER DISTRICT, COLORADO.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Red Cliff is situated on the Pacific slope, about twelve miles from the source of the Eagle River, and twenty-three miles from Leadville, which latter place is reached by stage, via Tennessee Pass. The town lies almost in the shape of a triangle, bounded on the east by Horn-Silver Mountain, on the south by Iron Mountain, and on the west by Battle Mountain. The Eagle River, dividing Horn-Silver and Iron mountains, and Turkey Creek, dividing Horn-Silver and Battle mountains, wind through and unite their waters just inside the lower limits of the town.

The first mining claims taken up in this section were located in the spring of 1879; but no important influx of people to the district took place until the spring of 1880, the most flighty of whom were carried away by the foolish excitement about Roaring Forks and the Gunnison country generally, which will account for the comparatively small amount of work done on mining property here.

The formation of Battle Mountain is, as near as I can make out, as follows: Granite (being the natural bed-rock); quartzite, about 130 feet thick; lime, about 80 feet thick; porphyry, averaging say 75 feet thick; black shale, averaging say 30 feet thick; above which are conglomerates or shale and limestone, topped off with a species of red sandstone.

Mineral is found *in* the quartzite, between the quartzite and lime, and between the lime and porphyry. By far the largest bodies of ore have been discovered in the latter contact. Generally speaking, the quartzite ore runs higher in silver, less in lead, and is more refractory than ore taken from the lime and porphyry contact. Not a great deal of work has been done on the quartzite. The Mary Isabel lode, with a tunnel 55 feet in length, showing 6 feet of mineral; the Eclipse lode, with a 25-foot tunnel and about 5 feet of ore; and the Polar lode, in about 60 feet, and with 6 feet of mineral that is said to mill 100 ounces of silver to the ton, are fair samples of the prospects on that contact. The lime and porphyry contact, however, having been prospected more, makes a better showing. This contact stretches from Turkey Creek to Astor City, a distance of seven miles, and on it are located the following claims: Mountain Chief, Indian Girl, May Queen, Mexican Maid, Bertha, Blake, Belden, R. L. R., Eagle Bird, Silver Wave, Florence, Clinton, Cleopatra, Prince, Spirit, Iron Mask, Little Belle, Little Ollie, Kingfisher, Little Chief, and Crown Point lodes, and others too numerous to mention. These claims are all on the western slope of the mountain. The Indian Girl is prospected by a shaft 60 feet in depth, and two drifts, one 35 feet and the other 48 feet in length. The lower drift shows 3 feet of sand carbonates, running high in lead, and highly impregnated and stained with iron.

The May Queen has a shaft 55 feet deep, drift of 80 feet, winze at end of drift 27 feet, and level from bottom of winze 13 feet. This mine has 5 feet of ore that will mill 30 ounces of silver and 45 per cent lead.

The Belden is one of the best developed mines in this section. The main incline is in to a depth of 350 feet; cross-cuts and levels run in all directions, exposing a solid body of ore 13 feet in thickness. A strike was recently made in the breast of the main incline, of a large body of fine-grained galena, said to mill 105 ounces of silver and 65 per cent in lead; but for this I can not vouch. The Belden is now the property of the Battle Mountain Smelting Company; and if the ore now in sight yields but 20 ounces of silver to the ton, it will prove to be a bonanza.

The Silver Wave is prospected by an inclined tunnel 150 feet in length, and shows 8 feet of sand carbonates, low in grade.

The Cleopatra has a 100-foot tunnel, and shows 30 feet of contact-matter, mostly hematitic iron.

The Prince and Spirit lodes both have full breasts of mineral.

The Little Chief, prospected by a shaft 60 feet in depth and two levels, one at a depth of 40 feet, 30 feet in length, and the other at 60 feet, 45 feet in length, has 34 feet of mineral-bearing matter. This property is bonded to the American Smelting Company, of Leadville.

The eastern slope of Battle Mountain is prospecting diligently by the Eagle River Mining and Manufacturing Company, of New York, which has a tunnel 265 feet in length, on the Little Hope claim, which is looking well.

The Silurian lode, on the same slope, is a promising prospect, with pockets of ore containing chlorides of silver, and yielding as high as at the rate of 714 ounces on an assay.

The Herald mine, owned by the Eagle River Consolidated Mining Company, gives promise of becoming a valuable property upon development. A large pocket of solid galena, milling 170 ounces silver and 65 per cent lead, was struck in this claim last summer.

The Onondaga lode, near Willow Creek, is now attracting some attention. A tunnel has been run in for 50 feet, and a shaft at end of tunnel begun, which is going through what is known as "block porphyry." This porphyry is completely filled with small particles of galena. The owners are confident of striking a large body of galena in a short time.

There are numbers of other excellent and promising prospects that I could name on Battle Mountain, but I fear to trespass upon your valuable space. Owing to the severity of the winter, prospecting has been hindered to a great extent; but we expect to make a big showing the coming spring and summer. Capitalists all over the country are becoming interested in the district, and a large amount of money will be spent in development this year. We have a small smelter in operation, and the company owning it has, in fact, begun to build another and larger works, capable of treating at least 100 tons of ore daily. To insure a plentiful supply of ore, the smelter company has purchased the Belden mine, mentioned above, which, it is stated, is improving at the rate of an ounce of silver to the foot gained in depth.

E. R. HANLEY.

RED CLIFF, SUMMIT CO., COLO.

ON THE WEIGHT, FALL, AND SPEED OF STAMPS.*

By Adjunct Professor H. S. Munroe, E.M., Ph.D., School of Mines, New York City.

(*Concluded from page* 177.)

In order to eliminate, as far as possible, conditions having effect on the product, other than the foot-pounds developed by the fall of the stamp, differences in the character of ore, etc., we may take groups of ten to thirty mills having stamps of nearly equal weight and fall, and compare the average efficiency of these mills with the efficiency of others using heavier and lighter stamps. The result of such a comparison is shown in the following tables:

TABLE I

CALIFORNIA GOLD-MILLS, 1869.

(Data from Raymond's *Mineral Resources*, 1870.)

	1	2	3	4	5	6
MILLS.	Average weight of stamps.	Average drop. (Inches.)	Average speed (drops per min.).	Average foot-pounds per drop.	Pounds ore crushed per drop.	Pounds ore crushed per 1000 ft.-lbs.
10 mills, 800-950 lb. stamps.	850	10·3	60	729·4	0·0464	0·0636
30 mills, 600-750 lb. stamps.	666	9·1	68	507·4	0·0344	0·0677
10 mills, 500-600 lb. stamps.	555	8·6	65	409·9	0·0265	0·0660
18 mills, 500 lb. stamps.	500	8·0	60	333·3	0·0235	0·0705
15 mills, 300-600 lb. stamps.	487	6·2	65	267·0	0·0204	0·0764

TABLE II.

CALIFORNIA GOLD-MILLS, 1875.

(Data from *Mineral Resources*, 1876.)

	1	2	3	4	5	6
MILLS.	Average weight of stamps.	Average drop. (Inches.)	Average speed (drops per min.).	Average foot-pounds per drop.	Pounds ore crushed per drop.	Pounds ore crushed per 1000 ft.-lbs.
10 mills, 750-900 lb. stamps.	830	9·9	75	685·6	0·0395	0·0576
30 mills, 660-900 lb. stamps.	711	8·9	76	525·0	0·0339	0·0656
10 mills, 600-750 lb. stamps.	667	7·8	76	435·0	0·0303	0·0696

TABLE III.

COLORADO GOLD-MILLS, 1869.

(Data from Hague's *Mining Industry*, p. 574.)

	1	2	3	4	5	6
MILLS.	Average weight of stamps.	Average drop. (Inches.)	Average speed (drops per min.).	Average foot-pounds per drop.	Pounds ore crushed per drop.	Pounds ore crushed per 1000 ft.-lbs.
10 mills, 500-900 lb. stamps.	696	14·2	27·5	822·5	0·042	0·0511
13 mills, 450-750 lb. stamps.	533	13·5	32·0	600·1	0·037	0·0617
10 mills, 350-500 lb. stamps.	475	12·2	32·5	483·5	0·042	0·0870

The mills in the different tables are arranged according to the foot-pounds developed in the fall of the stamp. An inspection of the columns of weight and drop will show that it is the practice, both in California and Colorado, to give higher drops to the heavier stamps. Column 5 shows that the amount of rock crushed increases with the force of the blow, while column 6 shows that heavy blows are not quite so economical as light ones.

These facts are brought out even more clearly in the following diagram, in which among other things, the results given in the tables are plotted carefully to scale. The effect of averaging in each case the result of a number of mills having stamps of equal weight and fall, shows itself in a striking manner in the diagram, the plotted points falling almost in a single line.

We may go farther than this, and, by use of the method of least squares, average these averages and determine the curve which will approximate the results most closely, and thus determine the law which governs the relation between the weight of the blow and the ore crushed, at least within the limits of the data under discussion. By forming a series of equations for different values of x and y, making x equal to the foot-pounds and y equal to the pounds of ore crushed in each case, and combining the equations by the method of least squares, we obtain a series of normal equations from which constants for x and y may be determined.

The California stamp-mills thus treated give the following formula:

$$y^2 + 0{\cdot}04\ y = 0{\cdot}0000048\ x,$$

which is the equation of a parabola passing through the origin of co-ordinates and with its vertex below the axis of x.

This curve has been traced on the diagram, and it will be seen that it

* A paper read at the Lake Superior Meeting of the American Institute of Mining Engineers, August, 1880. From the Transactions of the Institute.

coincides very closely with the plotted points, and serves to express clearly the relation between the force of the blow and the amount of ore crushed. The amount of ore crushed increases regularly with the force exerted; but the amount crushed per foot-pound is somewhat less with stamps giving a heavy blow than with those giving a light blow. The Colorado stamps, as they work under somewhat abnormal conditions, have not been used in the determination of the curve; but it will be seen that, with the exception of the mills with light stamps, their agreement with the general law is quite close. These light stamps give very high results; but careful inquiry, made on a recent trip through Colorado, casts some doubt on the accuracy of the data involved. The fact that there are at present no mills in Gilpin County with stamps developing less than 500 foot-pounds, and only two mills approximating this figure, is also of interest in this connection.

We may, in a similar manner, compare the Lake Superior stamp-mills with each other and with the cement-mills of California, which have equally coarse screens.

TABLE IV.

STAMP-MILLS WITH $\frac{3}{16}$" SCREENS.

MILLS.	1 Average weight of stamps.	2 Average drop. (Inches.)	3 Average speed (drops per min.).	4 Average foot-pounds per drop.	5 Pounds ore crushed per drop.	6 Pounds ore crushed per 1000 ft.-lbs.
29 Ball stamps, Lake Superior	4,200	20?	90	26,500	1·840	0·070
3 mills, drop stamps, Lake Superior	1,100	11	51	1,007	0·120	0·120
Atmospheric stamps, Phœnix Mill, Lake Superior	270	16	150	585	0·086	0·146
Cement-mill, Inyo Co., Cal., 1869, half-inch screens	650	8	60	433	0·071	0·164
Taft's Mill, Eldorado Co., Cal., 1869, quarter-inch screens	300	7	80	175	0·030	0·171

Omitting the Ball stamps, the formula obtained by the method of least squares for these stamps with $\frac{3}{16}$ inch screens is

$$y^2+0{\cdot}07\ y=0{\cdot}000023\ x.$$

This curve also has been traced on this diagram, and coincides closely with the plotted points. The Ball stamps, developing an average blow of about 26,500 foot-pounds, and therefore far beyond the limits of the diagram, give much better results than would be indicated by the above equation. Including the Ball stamps, the equation becomes

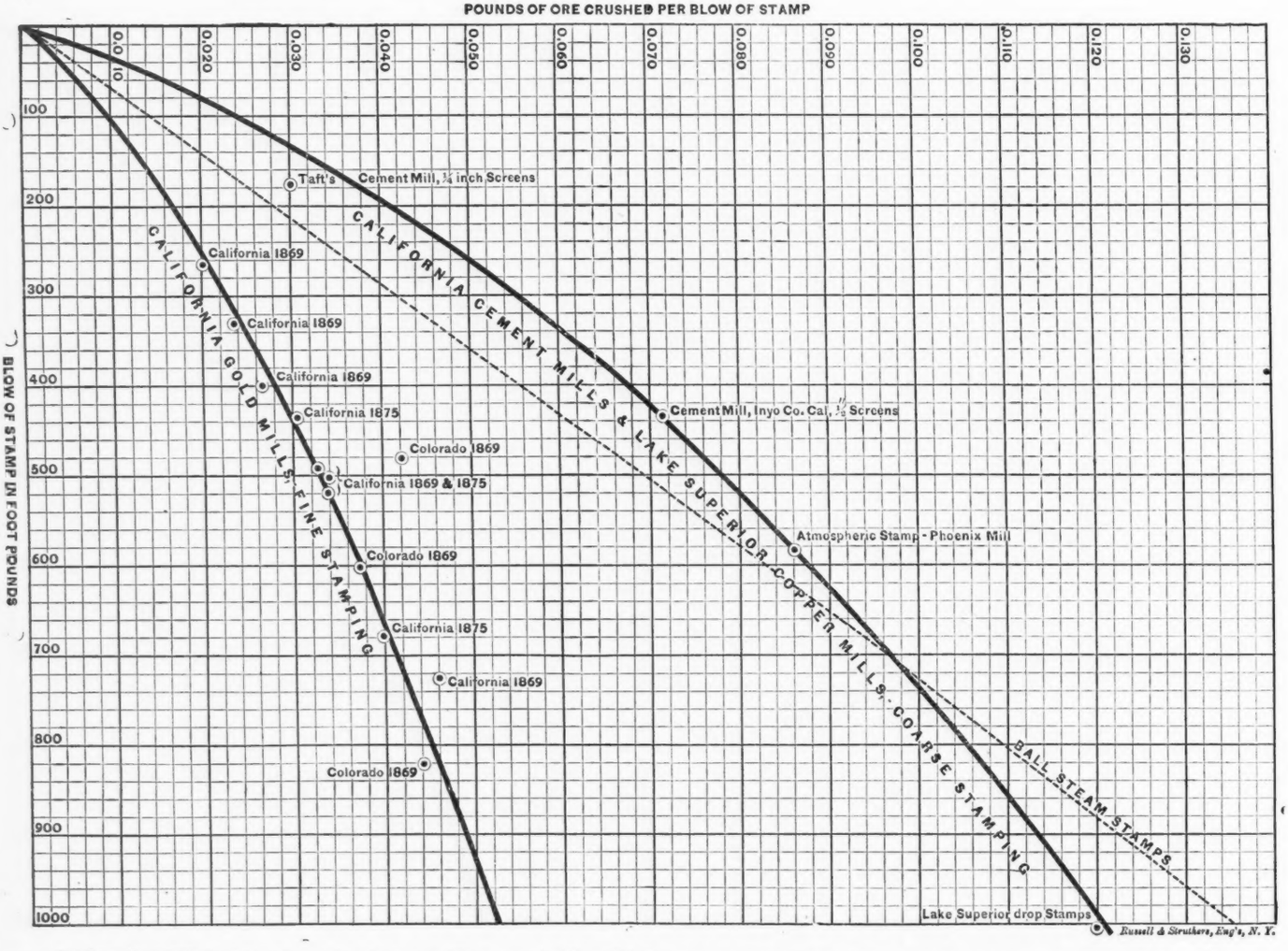
$$y^2+1{\cdot}67\ y=\cdot0002437\ x.$$

The curve corresponding to this formula is shown in a broken line, passing above the drop stamp and somewhat below the other mills.

DIAGRAM II.

SHOWING THE AVERAGE CRUSHING EFFECT, PER SINGLE BLOW, OF STAMPS WITH FINE AND COARSE SCREENS.

See Tables I., II., III., and IV.



HIGHT OF LIFT.—It has thus been proved that the product of a stamp battery increases with the force of the blow of the stamps, though not quite in the same proportion. The tables already given show that it is the practice to increase the force of the blow by increasing both the weight of the stamp and the hight of the drop, the heavier stamps having uniformly higher drops. It will be interesting, therefore, to compare stamps of different weight, having equal drop, in order to determine the effect of increase of weight, and also to compare stamps of equal foot-pounds but different drop, or light stamps with a high drop with heavy stamps with a low drop, in order to determine the effect of hight of lift on the amount crushed per foot-pound. The following diagram gives the results of such a comparison. This comparison was made by grouping the California stamp-mills, not only according to the weight of the stamps, but also according to hight of drop, and then calculating the averages for each group, as in the previous comparisons.

The average of three Colorado mills with 15 and 16-inch drops has been added to show the effect of very high drops.

An inspection of the diagram will show: first, that of stamps developing equal foot-pounds, those with a lower drop give decidedly better results than those with a higher drop; and second, that of stamps of equal drop, the lighter stamps give somewhat better results per foot-pound than the heavier ones.

We see, therefore, that both the increase of the weight of the stamps and the increase of the hight of lift tend to diminish the amount of ore crushed per foot-pound, and that, if it be necessary to increase the crush-

ing effect of the battery, it is better and more economical to increase the weight of the stamp than the hight of the drop.

This law does not apparently apply to velocity of impact; for the atmospheric stamp and the Ball stamp have a final velocity equal to that of a 2-foot drop and a 6-foot drop respectively. These stamps, however, from inspection of the broken lines in Diagram II., would seem to give better results than the drop-stamps with but 11 inches fall.

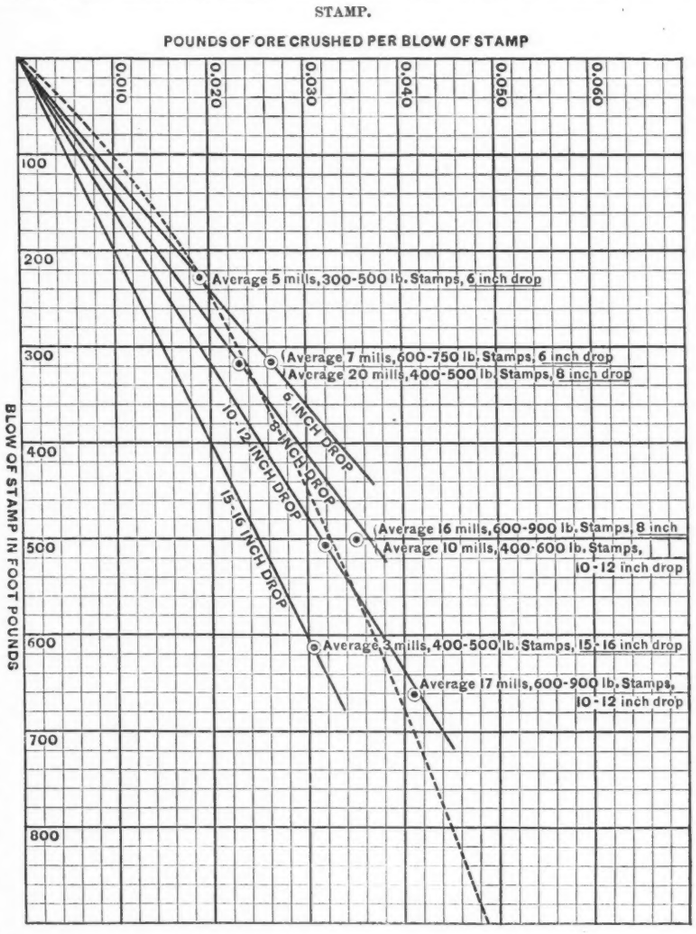
The explanation of the advantage of a low drop probably lies in the fact that the blow of the stamp is given under water, and that the resistance of the water and slime prevent the stamp from acquiring the velocity due to its fall, so that the stamp with a high drop expends a larger part of its energy in overcoming this resistance than is the case with the stamp with a low drop. The limit of economy in lessening the hight of drop will be reached when the blow of the stamp barely produces the splash necessary to effect the discharge of the crushed ore through the screens.

Tables I. and II. show that but little change in the average hight of drop was made in California between 1869 and 1875, except the abandonment of very high and very low drops. In 1869, the range was between 6 inches and 10 inches, but few mills only having drops of 11 and 12 inches. In 1875, 80 per cent of the mills reported had drops of 7, 8, or 9 inches, while a few had 10 inches and above. More recent data seem to indicate a tendency to adopt 8 inches as the standard hight of drop. Diagram III. would seem to indicate that 6 inches might be even better than 8 inches; but the results given in the diagram are drawn from too few mills to warrant the acceptance of this as proved. It may be, as was probably the case in the Colorado mills with light stamps, that the material crushed in these mills with low drops was soft ore, not requiring heavy blows.

In Colorado, the change since 1869 has apparently been in a contrary direction. Of half a dozen mills visited this summer, representing the best practice in Gilpin County, the drop ranged from 13 inches to 18 inches, the average being 16 inches. The results obtained confirm the law already stated, the stamps with a low drop giving better results than those with a high drop. The necessity for a high drop in Colorado stamp batteries comes from the construction of the mortar, the bottom of the screens being 11 inches or more above the die. This high issue is given to allow the amalgamated copper plates in the mortar to be placed at least 6 inches above the die, that they may not be covered by slime nor have the amalgam rubbed off in the crushing of the ore. In short, the stamp batteries are built as amalgamating machines, and not with a view to crush as much ore as possible.

DIAGRAM III.

SHOWING THE EFFECT OF HIGHT OF DROP ON THE CRUSHING CAPACITY OF THE STAMP.



SPEED OF STAMPS.—Tables I. and II. show that between 1869 and 1875 the average speed of stamps in California was increased from 62 drops per minute to 76 drops, an increase of 23 per cent. A careful inspection of Diagram II. will show the average efficiency of the later stamp-mills to be as great as those of 1869. It is possible, however, that improvements in construction and in details of working may have offset losses due to extra speed. The following comparison, between mills of nearly equal foot-pounds and the same average hight of drop shows, however, no loss from 17 per cent increase of speed:

	Foot-pounds.	Drops per minute.	Pounds crushed per blow.
Average 10 California mills.....	525·0	82	0·034
Average 10 California mills.....	534·7	70	0·035

The data are from the report for 1876, and therefore from mills of modern construction. The result would seem to show a slight advantage in favor of the slower-moving stamps; the difference, however, is exactly what should result from the difference in foot-pounds.

The high efficiency of the Phœnix atmospheric stamps, with 150 drops per minute, crushing ·086 pounds of rock per drop, or 9·17 tons per head per 24 hours, furnishes another argument in favor of high speeds.

It would seem therefore that the speed of the stamp-battery may be increased without diminishing the tons crushed per horse-power, the product of the battery increasing in the same proportion as the speed.

In dry stamping, the effect of increasing the speed is to increase the product of the battery in very much greater proportion. The following table, from the report of the Commissioner of Mining Statistics for 1870, gives the result of experiments made at the Mettacom Mill, of Austin, Nevada:

No. of drops per minute.	Horse-power per stamp.	Increase of power.	Yield in tons per 24 hours.	Increase of yield.
60	1·36	.....	4½	.....
90	2·04	50 per cent.	10	122 per cent.
102	2·22	10 per cent.	15½	55 per cent.

By increasing the speed from 60 to 102 drops, an increase in speed of 70 per cent, the product of the battery was increased from 4½ to 15½ tons, or 244 per cent.

EFFECT OF SIZE OF SCREEN OPENINGS AND AREA OF SCREENS.—The discharge of the stamped material through the screens of the battery depends: first, on the size and total area of screen openings; second, on the average velocity of the jets of slime through the holes of the screen; and finally, on the thickness of the slime or the proportion of solid material in the outflowing water.

The larger the area of the screens, the greater will be the discharging capacity of the battery.

The size of the screen openings has effect in several ways: first, the smaller the openings, the finer the ore must be crushed, fine screens thus increasing the work of crushing, and diminishing the crushing capacity of the battery; secondly, with fine openings the friction of their outflowing jets is increased, and therefore their velocity diminished; and finally, the smaller the holes, the less will be their total area in a screen of given size, as, in order that the screen may be durable, it is necessary to have the metal between the openings of greater proportional thickness. The effect of diminishing the size of the screen openings is therefore to diminish both the crushing and the discharging capacity of the battery. Rittinger, as the result of practical experiments, states that the product of a battery is proportional to $\sqrt[3]{d^2}$, d being equal to the diameter of the screen-openings.

The discharge of the slime will be mainly during the fall of the stamp, the suction produced in the lifting of the stamp-head having a tendency to retard or check the outflow. The velocity of the jets of slime will be more or less proportional to the velocity of the falling stamps, and the duration of the jet will depend on the time occupied by the stamp in falling. The discharge of slime per blow of the stamp should, therefore, increase with increased drop of the stamp, the higher drop giving both greater velocity and longer time of falling. The total discharge in a given time should be proportional to the number of drops or splashes.

The thickness of the slime, that is, the amount of solid material in a given volume, will be greater the less water is used, and the longer the slime remains in the battery before being discharged. By increasing the hight of issue, or by increasing the depth of mortar below the screen, we may increase the volume of slime in the mortar as compared with the volume of the outflow, and thus by lengthening the time in the mortar increase the thickness of the slime and diminish the amount of water required to effect the discharge of a certain amount of ore. In Colorado, the amount of water required is from 0·33 to 0·5 cubic feet per head per minute. Rittinger attains a similar result, and at the same time utilizes the whole hight of the screen for the discharge of the slime, by closing the front of the battery outside of the screen, and regulating the discharge by a spigot at the bottom. With this *stausatz*, the amount of water required for fine stamping is 0·3 cubic feet per head per minute. The amount of water necessary to effect the discharge may thus be taken at 15 to 25 times the weight of the stamped material. By increasing in some such manner the thickness of the slime, it is possible to increase the discharging capacity of the battery without enlarging the screen or the size of its openings, and at the same time to diminish the amount of water required. With the large amount of water used, it is evident that the thickness of the slime will have little or no influence on the velocity of the outflowing jets.

It has frequently been stated by writers on the subject that the product of stamp-mills is limited by their discharging capacity; that it takes longer to effect the discharge of the ore through the screens

than it does to crush it. In support of this statement, an experiment is quoted, said to have been made in California some years ago. A quantity of pulp, which had already once passed through the battery, was recharged in the mortar, and it was found that it took nearly or quite as long for this material to pass through the screens as to crush an equal amount of ore. This, however, does not prove that the crushing capacity was any greater than the discharge; for in the ordinary work of the battery, the crushing and the discharge go on together.

If the crushing capacity of a battery exceeds the capacity of discharge, then the product of the battery should be independent of the weight of the stamp. We have found, on the contrary, that the product increases with the weight of the stamp. Again, as a high drop gives longer duration and greater force to the splash, the product of stamps with a high drop should be greater than that of stamps with a low drop. We have found the contrary to be the case. Finally, the area of the screen should have important influence on the product in case the discharging capacity is less than the crushing capacity. The data at hand to decide this question are somewhat meager. In the report for 1870, the dimensions of the screen are given in the case of twenty mills only. Grouping these mills according to weight and drop of stamps, we find that mills with screens 12 inches wide give as good results as mills having 16-inch and 20-inch screens. A single mill is reported as having a screen of only 10 × 12 inches (!) for a battery of five stamps; and yet the product of this mill is as high as the average. The Colorado stamp-mills have screens only 9 or 10 inches wide; yet the product of these mills, when the drop is not too high, is as large as the average of the California mills. Finally, the Briggs Mill, in Black Hawk, Colo., has double discharge; the product, however, per blow of the stamp is not greater than the product of the Bobtail Mill, with screens on one side only. We may therefore reasonably infer that, with the ordinary dimensions of screen as used in California, the crushing capacity of the battery is not limited by the conditions of discharge. With soft material, ores of silver, for example, when the amount crushed per blow of the stamp is greater, it may be necessary to use larger screens, or even to employ a double discharge to the battery.

OTHER CONDITIONS.—There are many other conditions affecting the product of a stamp battery, for investigating which, unfortunately, we have no data. Among these are the ratio of the total area of the stamp-shoes to the total area of the mortar, involving the effect on the product of the waste space in the mortar. Other questions connected with screen discharge demand investigation, including the best slope for screen plates, area necessary for a certain product, hight of screens above mortar bottom, shape of screen openings, etc.

RÉSUMÉ.—The following conclusions may be drawn from the data at hand:

1st. The product of a stamp battery, other things being equal, is directly proportional to the foot-pounds developed in the fall of the stamp, and to the number of blows per minute, provided only that the discharging capacity of the battery be equal to or greater than its crushing capacity.

2d. Both the force of each blow and the number of blows per minute may apparently be increased indefinitely with but slight diminution of the rock crushed per horse-power, provided that the discharge be increased in the same proportion.

3d. The discharge of a battery depends on the character of the screen (its area, the size and number of its openings, etc.) and on the number and duration of the splashes produced by the fall of the stamp. The discharge can not therefore be increased indefinitely, but to a certain extent increases with the speed of the battery, or with the number of drops per minute.

4th. With a limited discharge, equal to or less than the crushing capacity of the battery, the product may be raised by increasing the speed, but can not be raised by increasing the force of the blow.

5th. A light stamp with a high drop and a heavy stamp with a low drop produce nearly equal crushing effect, provided that the foot-pounds developed are the same. The advantage, however, is in favor of the heavy stamp and low drop.

6th. To increase the crushing effect of a stamp battery, it is better to increase the weight of the stamps than the hight of the drops.

7th. A drop of 8 inches has been generally adopted as giving better results than higher drops. It is possible that still lower drops may prove economical.

8th. The objection to high drops does not seem to apply to high velocity of impact as obtained by spring stamps, atmospheric stamps, or steam stamps, which apparently give results as good as, or even better than, those from stamps of which the foot-pounds are due principally to weight.

9th. High speed and high velocity of impact lessen the weight of the stamps and diminish the number of batteries requisite for a given amount of work, and therefore lessen the first cost of the plant. These smaller batteries do not demand large buildings for their accommodation, nor the construction of large and expensive foundations. To offset this saving, must be placed the extra wear and tear due to high speeds.

10th. In the ordinary construction of stamp batteries with cams and tappets, velocity of impact can be secured only by giving the stamps a high lift. This is incompatible with high speed. But as we have already shown, under the conditions of limited discharge, speed is more to be desired than high velocity of impact.

11th. With steam stamps, atmospheric stamps, or spring stamps, both high velocity of impact and high speed can be secured. By the use of machines of this character, the maximum effect can be obtained with the smallest plant. The product that can be obtained from one head will be limited by mechanical conditions, and by the impossibility of increasing the discharge beyond a certain limit. The last limitation will operate sooner with fine screens than with coarse.

12th. In fine stamping, both the difficulty of discharge and the work of crushing increase with the fineness of the product. According to Rittinger, the product of the stamp battery is proportional to $\sqrt[5]{d^2}$ in which d is the diameter of the screen openings. This ratio seems to hold good with the stamp mills of this country, though data are wanting to determine this exactly.

IS IT CARBONIC OXIDE?

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: It is surprising to find in Professor Egleston's interesting translation of an account of a case of poisoning by the products of the imperfect combustion of coke a curious *non sequitur* in reasoning.

The author seems to argue thus: Certain symptoms are produced by a gas of unknown composition containing carbonic oxide. One of these symptoms is loss of speech. Coal miners losing their lives through exposure to a gas which may or may not contain carbonic oxide also suffer loss of speech before death, as is shown by their having made signs to each other. From these premises the conclusion is drawn that carbonic oxide is the fatal ingredient in both instances.

Possibly Professor Egleston does not adopt this reasoning. He may only wish to gather instances to discover what the poisonous ingredient really is. But Mr. Meurgey, the author of the original paper, appears to be less accustomed to scientific methods or to possess a less calmly judicial mind than the learned professor, and thus to have fallen into the logical error of finding a good deal more in his conclusion than is contained in the premises. Yours respectfully, H.

NEW YORK, March 15.

CLARENCE KING'S RESIGNATION.

WASHINGTON, March 15.—The following letters were exchanged in connection with Clarence King's retirement from the position of Director of the Geological Survey:

WASHINGTON, D. C., March 12, 1881.

To the President of the United States, Executive Mansion, Washington, D. C.:

SIR: Finding that the administration of my office leaves me no time for personal geological labors, and believing that I can render more important service to science as an investigator than as the head of an executive bureau, I have the honor herewith to offer my resignation as Director of the Geological Survey. Very respectfully, your obedient servant, CLARENCE KING.

EXECUTIVE MANSION, March 12, 1881.

DEAR SIR: In accepting your resignation, which I do with reluctance, permit me to express my appreciation of your efficient services to the government during your term of office, and my regret that you do not find it possible to longer remain in charge of the Geological Bureau.

Very truly yours, JAMES A. GARFIELD.

MR. CLARENCE KING, Washington, D. C.

THE CARBONIC ACID GAS PROCESS AT THE KEHLEY RUN COLLIERY FIRE.*

By H. M. Chance, Philadelphia.

The failure of this method at the Kehley Run Colliery has given rise to many sweeping denunciations of the inefficiency of the process; but a careful survey of the facts and conditions under which it was tried will show that a fair trial of the method was not and could not be made at this colliery; its failure in this particular instance should, therefore, not be held as evidence against the process.

In itself, the method seems to be theoretically perfect; but in practice several conditions are essential to its successful use, and if these are not satisfied, a successful result can not be expected.

In 1871, the carbonic acid method was unsuccessfully employed by the Lehigh Coal and Navigation Company at its No. 6 colliery. Of the conditions under which this trial was made, I have no data.

In 1874, a fire at the Wynnstay Colliery, Ruabon (England), was successfully fought by carbonic acid generated by the action of chlorhydric acid upon limestone. The method is described in a paper read before the Iron and Steel Institute, by Mr. George Thompson.

Other trials are recorded in the North of England Institute Proceedings and other publications; but I have not been able to give the time necessary to a compilation of the records.

When first discovered, the Kehley Run fire was probably confined to two old breasts (Nos. 8 and 9) on the first lift. These breasts had been abandoned for many years, and little was known of their condition. Although the mammoth bed is about fifty feet thick from floor to roof, not more from than eight to twelve feet of this had been mined from these workings; there was, therefore, a large amount of coal, exclusive of that left in the pillars, still remaining in this part of the mine.

The fire may have originated in the gob, of which there was probably a large quantity in each breast; but its cause is not known. An almost continuous line of crop-falls marked the site of the workings, and, shortly after the fire was discovered, these were greatly enlarged by additional falls.

The gas with which it was proposed to extinguish the fire was generated by a square brick furnace open at the top, but hermetically closed in beneath the grate-bars. A 9-inch pipe was carried into the furnace beneath the bars, to carry off the gas. Anthracite coal and charcoal were alternately used as fuel, and a small quantity of lime (5 per cent) added from time to time. The contractors stated that the lime was used to *prevent the generation* of *carbonic oxide*. The fire was usually kept from 6 to 12 inches deep.

The 9-inch delivery-pipe was water-jacketed for a distance of about 20 feet, to reduce the temperature of the gas. The gas was taken from this 9-inch pipe by four 3-inch distributing-pipes, to each of which was attached a steam siphon injector, supplied with steam at 60 pounds pressure. It was claimed that these injectors would exhaust from the furnace and discharge into the mine about 1500 cubic feet of gas per minute. Spray jets were introduced into the delivery-pipes a short distance beyond the injectors, to effect a further cooling of the gas. Three of the delivery-pipes were driven down through the crop-fall *débris* directly into one of the breasts, and the fourth was connected with a diamond-drill hole, opening into the lower part of the same working.

Attempts to make the crop-falls air-tight by filling them with decom-

*A paper read at the Philadelphia Meeting of the American Institute of Mining Engineers, February, 1881.

posed out-crop coal-dust and earth were only partially successful. The crop-falls were so large and numerous that an enormous quantity of gas constantly leached through the material with which they had been filled, and as the ground surrounding and covering the site of the fire was constantly settling, fissures were probably produced, allowing a free escape of gas and influx of air. At no time could the mine be considered air-tight.

The temperature of the gasses thrown into the mine was certainly at times very high, and rarely if ever fell below 100° Fahr. Before the spray jets were introduced, the temperature was certainly above the boiling-point of water.

It is extremely doubtful whether the furnace was producing a mixture of carbonic acid and nitrogen free from carbonic oxide; on this point there seems to be considerable diversity of opinion.

The conditions essential to the successful use of this method may be grouped under two heads: First, those relating to the mine; and secondly, those governing the gas supply.

1st. The mine, or that portion on fire, must be rendered air-tight; or the supply of gas must be largely in excess of the capacity of the leaks.

2d. *a*. The production of carbonic oxide by the generating furnace must be prevented.

b. The temperature of the injected gas should be moderate (70°–100°).

c. After combustion has ceased, sufficient time must be given to insure a thorough cooling of the mine; and during this period, the supply of gas must not be appreciably diminished.

It can not be asserted that any one of these conditions was satisfied at the Kehley Run fire; and it does not seem just that the method should be condemned because of its failure in this particular instance.

Its advantages over other methods of dealing with mine-fires are too evident to need further comment, and to these very advantages may be attributed the disfavor into which it has fallen. They have induced engineers to use it in cases to which it is ill-adapted, namely, at mines which could not be rendered even approximately air-tight.

CANADIAN PETROLEUM INSPECTION ACT.

The government bill to regulate the Petroleum Inspection Act of 1880 passed its second reading in the Canadian House of Commons last week. The Minister of Inland Revenue stated that the government had concluded to maintain the gravity-test in the interest of public safety, and the flash test stood in the same position. Any excess of paraffine in the oil was very injurious, in consequence of its crystallizing at a given degree of temperature when it precipitated, and was liable to generate explosions. The government began to regulate this trade in 1868, and last year the flash was placed on Canadian oil at 115 and on imported oil at 120, and the gravity-test at 8·02. They now propose to put the flash-test at 115 on both Canadian and imported oils, and had no objection, if the House desired it, to place the gravity-test at 8·05. In the United States, oil was not allowed to be exported unless it was subjected to both the tests mentioned, and the gravity-test was there fixed at 8·02. They also proposed to introduce an amendment to prevent smuggling, enacting that packages from which the marks, etc., were not obliterated would be seized and forfeited to the crown, the penalty being $1 for each offense. The proposition of the government was accepted, and the specific gravity-test was accordingly altered from 8·02 to 8·05, the effect of which action will be to slightly reduce the price of the refined oil.

THE BI-METALLIC CONFERENCE.

A dispatch from Rome, dated March 15th, says: "The invitation addressed to Italy by the Marquis de Noailles, the Ambassador of France, in French, and by Mr. Marsh, the American Minister, in English, concludes as follows: 'The government of the French Republic and the government of the United States having exchanged views on the subject of a conference between the powers chiefly interested in the question of establishing the use of gold and silver as a bi-metallic international money, and of insuring the fixity of the relative value between those metals, and being agreed on the utility and importance of such conference, as well as on the time and place of its being held, have the honor to invite the Italian government to take part in a conference composed of delegates to be nominated by each government. This conference will meet in Paris on the 19th of April, to consider and adopt, with the view of submitting to the acceptance of the governments represented at the conference, a plan and system for the establishment, by means of an international convention, of the use of gold and silver as bi-metallic money, according to a fixed relative value between those metals.'"

From Washington, under date of March 14th, it is stated that William M. Evarts and Allen G. Thurman have officially notified the State Department of their acceptance of the office of commissioners on the part of the United States. Timothy O. Howe has not yet accepted, but it is believed that he will. The Italian government has verbally intimated to the French and American ministers its acceptance of the invitation; and it is said that Germany has also consented to join the conference, with the reservation that she will not be bound by its decisions. From the terms of the invitation, it will be seen that neither the adoption of the ratio of 15½ of silver to 1 of gold, nor that of 16 to 1, nor indeed any ratio so far advocated by any nation, is suggested; but that the question to be discussed is, What ratio shall be adopted?

CLEVELAND IRONSTONE.

Considering the importance with which the dephosphorization process has invested the Cleveland District, few questions can be of greater moment than those connected with the supply of the material to which that process is now giving a new value. Among other things, it is very desirable that the amount of ironstone in the Cleveland District should be known in order to see approximately over what period the new process is likely to extend—provided it be not superseded— or, in other words, how long local manufacturing industry will probably be provided with local raw material. Although there is a good supply at present, we need hardly say that it is not inexhaustible, and moreover, there are two distinct qualities of Cleveland stone, the one being superior to the other. These two classes occur in the main seam, the better being blue, very oolitic, comparatively free from aluminous matter, and yielding about 30 per cent of metallic iron. The second quality is of a dull yellowish tinge, not so oolitic, and containing alumina, the yield of iron being only about 28 per cent. A band of shale runs in this stone in some districts and forms a further drawback, preventing its being cheaply worked. The investigations of Mr. George Barrow, F.G.S., of the Geological Survey—the results of which he brought before the Cleveland Institution of Engineers—go to show that the good stone exists within an area comprising Eston, Upleatham, and the Skelton and Huntcliffe District. Eston contains nearly 24,000 foot-acres, that is, acres one foot in thickness, and as there are about 3610 tons of stone in an acre, there are in round numbers 86,640,000 tons in the Eston Royalty. In Normanby, there are 2300 foot-acres, and 8,300,000 tons of stone. In Ormesby, there are 720 foot-acres, and 2,600,000 tons of stone. In Dunsdale, there are 900 foot-acres, and 3,250,000 tons of stone. Besides the main seam, there are other and smaller seams of inferior stone, but it is by no means certain that any of them will ever be worked for iron. Among these are the Pecten seam, a seam below it known as the 2-foot band, and the Avicula seam, which underlies both. The Pecten seam, which is of poor quality, covers an area of about 50 square miles, and has an average thickness of about 2 feet 6 inches of iron ore, the total quality being roughly estimated at 400,000,000 tons. It has been mined for some years at Grosmont; but how much of the seam is workable, it is at present impossible to say. The 2-foot band is uniform in thickness, and generally of good quality. The area covered by it is about 60 square miles, and it has been worked in several localities. The Avicula seam is found under the whole of Cleveland; but its thickness varies, and its yield where worked is not very high.

Having ascertained the approximate quality of workable stone, let us next see what is the probable duration of the yield. Prior to 1865, the Mining Record Office returns on this subject are incomplete. Starting, however, from that year, and deducting the total taken out from the whole stone in a mine, allowing one tenth for loss in working, it would appear that the quantity now left in Eston is 60,000,000 tons; in Normanby, 2,500,000; and in Ormesby, 1,800,000. The average yearly output at Eston is 800,000 tons; at Normanby, 225,000; and at Ormesby, 75,000. Dividing, then, the totals of stone left for working, as above given by the latter figures, it would appear that the continued duration for Eston is 75 years; for Normanby, 8 years; and for Ormesby, 15 years. It is not impossible to fix the duration of Dunsdale. In the Upleatham District, with a total of about 36,100,000 tons of stone, the estimated duration is 30 years. In the Skelton and Huntcliffe districts, the workable quantity left is about 145,000,000 tons, the duration of which may be placed at 60 years. The main seam, as we have said, is in some districts very poor, consisting of 4 feet of stone, with a 2-foot shale parting in the middle. At the present rate of output, this inferior stone is calculated to last at the outside 130 years. But as the exhaustion of Upleatham and other mines would result in an increased draught upon its resources, it follows that it would be worked out within a much shorter period.

It will thus be seen that at the present rate of consumption there is a probable duration of 70 years for the best ironstone of the Cleveland District. Seventy years is not a very long time in the life of a district, and no doubt those interested in this locality would like to have had a further extension of time to look forward to. There is, however, a longer period open with regard to the second quality of stone, which gives a promise of supply for over a century, and this improves the prospect for the district. Beyond this, however, there are, as we have already stated, considerable quantities of stone remaining in the thin beds, and it is difficult at the present time to estimate their real value. It may be that in the future some of these beds will prove far more valuable than they appear to be at present, although they will doubtless only be worked if better stone is not found in other districts. In the mean time, it is satisfactory to know that Cleveland is fairly well secured with a supply of first and second-class stone for at least a century to come.—*Iron*.

PROGRESS IN SCIENCE AND THE ARTS.

Harbor of Refuge.—Prof. Augustus G. Rodgers, of the United States Coast Survey, has reported on the subject of the proposed harbor of refuge, to be constructed on the Pacific coast at the most suitable location, somewhere between San Francisco and the Straits of Fuca. He thinks that Trinidad is the best place to construct such an harbor, and in a report of some length recommends it as superior to either Crescent City or Port Orford.

Electricity in the Wrong Place.—The Albany *Journal* records an incident that exhibits this good servant in the character of a bad master. In one corner of Weed, Parsons & Co.'s printing establishment stands the machine that furnishes the electric light for an adjacent store, the power coming from the engine of Weed, Parsons & Co. One feature of the machine is the armature, a wheel containing coils of insulated wire through which the electricity flows in powerful currents when the apparatus is in operation. This armature revolves with terrific velocity, and constitutes a powerful magnet. On the day mentioned, a young man came in and ground a pair of large scissors at an emory wheel near the generator. Turning to go out past the machine, he carried the scissors carelessly in his hand, when they were immediately drawn into the armature, and were soon revolving with it at frightful speed. The young man got out of the way as quickly as possible and was unhurt. For a few minutes, the machine presented a very startling spectacle. The whirling scissors, twisted and broken, but still adhering to the revolving armature, began to cut the wires, and thus broke the electric current, which escaped in streams from the fractured ends of the wires, and in a moment or two that portion of the room was literally filled to the ceiling with whirling lightning. No one dared to approach the machinery for some little time, but the belt was finally thrown off, and the dangerous show was at an end.

Restoring Elasticity to India-Rubber Articles.—The tendency of articles made of rubber to lose their elasticity is familiar to all. Accord-

ing to Dr. Pol, immersion in a solution of ammonia suffices to restore the elasticity. Two parts of water to one part of liquid ammonia is a convenient mixture, the time required being about one hour.

The International Congress of Electricity.—The French government recently tendered to the United States an invitation to be represented in an International Congress of Electricity, to be held at Paris on the 15th of September next, and also to send an American Commission to the proposed International Electrical Exhibition of Paris, to open on August 1st, 1881, and close on the 15th of November following. President Hayes on the 10th of January recommended to Congress to provide for proper representation, both at the Congress and in the Exhibition, but the suggestion failed of action before the close of the session. It is announced that the Secretary of State is considering the feasibility of organizing a volunteer commission to represent the United States, and to that end he has applied for and obtained an extension of the time fixed for receiving applications from American inventors until the 15th of May. Forms of application in French can be obtained from the State Department, which will, for the present, take charge of any applications which may be sent to it; but the transportation to Paris and the return therefrom at the close of the exhibition of articles intended to be shown there must be at the expense and risk of the exhibitors. The exhibition will embrace all inventions and applications of electricity to science, art, manufactures, navigation, telegraphy, and commerce. Exhibitors delivering their exhibits at the palace of the Champs Elysées in Paris, will be given space gratis, but the installation of their exhibits will be at their own expense. Motive power will be furnished at a reasonable cost. Inventions not patented in France may be protected under the French law of 1868 by filing due application with the Prefect of the Seine, at Paris, at any time before the 31st of August.

Utilized Daylight.—The London *Building and Engineering Times* describes a system in operation, which it has recently examined, designed to give light in passages and portions of offices, stores, and other parts of buildings where, from close packing and a want of space, sunshine scarcely penetrates. The system consists in inserting semi-prismatic lens-lights in such positions as will allow refracted daylight to be admitted; even on a dull and cloudy day, every ray of daylight that could be brought under control being utilized in such a way that the "illumination of sub-structures is attainable in a marked degree without resorting to the use of gas or other artificial light. These semi-prismatic lights are of course made in a variety of forms; but it will be sufficient for the purposes of a general description to say that they consist of cast-iron frames into which are glazed either rectangular or hexagonal semi-prismatic reflecting lenses made from clear crystal glass, so placed that the light is reflected through the lens at such an angle as to slope from the front to the back of wherever they are *in situ*. At a distance of 60 feet from the front of the premises, we were able to read the smallest print, and the only source of light in a cellar used as a storage was that which passed through one of the pavement lights under notice. The same principle has been applied in the form of an improved safety coal-plate which can be set in flagged or asphalt pavements, and these are being extensively used in the streets of the metropolis, where they afford an element of safety, a protecting ring being supplied with each, which effectually prevents such accidents" as arise from "insecure coal-plates of the ordinary pattern, which are a frequent cause of danger to life and limb; but these improved appliances not only preclude such accidental occurrences, but subserve the purposes of ventilation. Some ornamental stall-boards also attracted our attention, and the effect of these is not only to dispense with window sashes and the unsightly iron railings commonly in use, but, as the same arrangement of lenses is employed, much additional light is reflected into basements where they are fixed."

The Panama Canal.—At the second "constitutive" meeting, recently held, M. de Lesseps read another report, in which he states that there are 102,230 shareholders; 80,839 being proprietors of from one to five shares, 19,143 of from 6 to 20 shares, and 3208 of from 21 to 50, and that there are 16,000 women inscribed by name among the shareholders. After stating that the canal will be certainly finished in 1888, M. de Lesseps remarks that the Isthmus only consists of a solid ridge of earth and stone over a length of 65 kilometers, and that at the two extremities roads and ports exist in bays frequented by the largest ships. Along the whole route there are means of getting provisions, towns and villages, the population of which will increase; water is everywhere to be had, and there is a railroad which takes you from one ocean to the other in three hours. In the ridge to be removed there is no part that has not been tested, and French contractors have learned at Suez and elsewhere how to dig in soft soil economically, and at Cherbourg how to attack submarine rocks. Recent borings have reduced the quantity to be lifted from 75,000,000 to 72,900,000 cubic meters, 44,500,000 being composed of alluvial soil, and 28,000,000 cubic meters of rock. The rough estimate of the work of the canal, properly so-called, the excavations, the construction of the lateral dikes, amounts to 430,000,000 francs; the weirs, the deepening of the trenches for conveying the fresh water to the sea, to 46,000,000 francs; which, added to 36,000,000 francs, to be expended on a waiting dock and tide-gates on the Pacific, which M. de Lesseps does not think will be necessary, bring up the sum total to 512,000,000 francs, estimated by MM. Couvreux and Hersnet as the total cost of the canal complete and opened to navigation. The work was begun on the 1st of February by a party of engineers and operatives, who started on the 6th of January. Since then, every packet has taken out fresh workers and materials. Toward October the contractors will begin the great cutting at the Culebra, and a short time afterward, and before the end of the year, the first excavators will begin to cut out the basin of the canal in the lower parts, while in the Bay of Colon a marine dredge will scoop out the channel of access to the canal. The programme of work will not require more than 8000 or 10,000 workmen in the most busy period of the work, who will be recruited, it is expected, easily from the colored population of Colombia and the West Indies.

CONNECTION OF THE ATCHISON, TOPEKA & SANTA FE AND THE SOUTHERN PACIFIC RAILROADS.—These roads have made connections at Tucson, Ariz. There were present R. R. Coleman, Manager of Construction; A. C. Longstreet, of the Southern Pacific; J. H. Bates and J. F. Kilaba, of the same, and others. The silver spike was driven at 3.45 by the above-named gentlemen. Engine 503, A., T. & S. F., driven by Engineer O'Neil, was the first engine from Atchison to the Southern Pacific Road.

MAINE MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

The Blue Hill is making good progress in the eastern drift, and taking out a high grade of sulphurets. Work on the smelters will probably be resumed soon. An 8-inch plunger-pump has recently been put in, to handle the increased amount of water.

The Twin Lead machinery is nearly ready to run. Work is going on on the smelters, and one furnace is nearly done.

The Douglas has its cupola furnaces about done, and the building over them slated. The company is at work on the engine-house, etc. Its work on the reverberatory furnace progresses as fast as the weather will permit.

The Stewart has recently struck a vein of water which will necessitate putting in new machinery.

The Granger is sinking a winze for the 200-foot level. The mine is looking well. DIRIGO.

BLUE HILL, ME., March 14.

GENERAL MINING NEWS.

ARIZONA.

GLOBE DISTRICT.

MACK MORRIS.—From the *Globe-Chronicle*, we learn that sinking has been rapidly progressing at this mine. A new contract has recently been let to sink another hundred feet at once, which will make the shaft 300 feet deep. A recent report states that this company has purchased the Arizona Mexican mill and all property connected therewith.

MEYERS DISTRICT.

From a letter written to the *Citizen* we condense the following: Ore has recently been struck in the Silver Grit North, which has the same general appearance as the ore taken out of the Silver Grit. This shows a continuation of this ore-body a distance of 800 feet northerly. Silver Grit North has just been purchased by Philadelphia gentlemen at a round figure, and a full force of miners is at work on the mine with fine prospects. Silver Grit grows richer as depth is attained. Work is pushed vigorously. The Atlanta mine is looking well; ore in the bottom of the shaft, 10 feet, of a good milling description. Work is now going on, and the mine placed in a good condition for extracting ore in quantities.

Horn-Silver mine, the north extension of the Gunsight, is being opened by a vertical shaft; a full force of miners is at work, but the shaft is not deep enough yet to intersect the vein.

COPPER QUEEN MINE.—The Tombstone *Epitaph* says: Most careful estimates have lately been made by reliable experts for the purpose of arriving at the value of the ore-reserves in the above mine. They give the amount of ore now in sight and ready for extraction at 25,000 tons, which will yield (placing the low average estimate of 20 per cent on the ore) 5000 tons of fine copper, the market value of which is say $385 per ton. This gives a total value of $1,925,000. As the ore worked has yielded more than 20 per cent, these figures are based on a conservative limit. The present workings of the mine are all in high-grade ore. This property was comparatively unheard of a year ago, and in July or August it was purchased for $30,000. It is now one of the biggest bonanzas in the territory. Among other good properties in the camp is the Copper Prince.

A group of copper mines, thirty in number, in the Santa Rita Mountains, is reported to have been sold on the 5th inst. to Eastern men for $50,000.

Coal has been found within twenty miles of Globe District, and copper discoveries are reported within six miles of Tucson.

CALIFORNIA.

THE BODIE DISTRICT.

According to the *Free-Press*, official reports for the week ending March 5th are as follows:

BODIE CONSOLIDATED.—The south upraise from the fifth incline level has been raised 14 feet, making its hight above the vertical upraise 88 feet. The vein is from six inches to one foot in thickness, and gives assays varying from $18 to $21. The west cross-cut from the north drift, sixth incline level, has been extended 14 feet, making its length from the drift 69 feet. On Saturday, a drift was started north on the vein. At the point whence the drift is started, there is one foot of very fine ore. The north drift on the Vulcan vein has been driven five feet, and the south drift on the same four feet. The small progress made here is owing to the men having been employed on some work in another part of the company's property. The stopes throughout the mine are yielding the usual quantity and quality of ore.

BODIE TUNNEL.—The north and south drifts in the Festoon or No. 20 vein are still yielding an ample supply of ore to keep the Miners' mill supplied, and pulp-assays show that the ore is improving in quality.

BOSTON CONSOLIDATED.—The shaft has been sunk 5 feet since last report; total depth below the 300-foot station, 32 feet. The bottom is in fine blasting rock and working well. The north drift on the 300-foot level is now following the vein, and is 5 feet between walls, well defined, with about 4 inches of clay parting on the east wall. The ore is of the same character and value as last reported, and of good milling grade. The east wall is firm and requires no timbering. Meeting with some water, but not enough to interfere with the work.

BULWER CONSOLIDATED.—The west cross-cut from the south drift on the Ralston ledge, 200-foot level, is in 74 feet; progress, 13 feet, with no particular change to note.

CONSOLIDATED PACIFIC.—The vein in the north drift, tunnel level, on Pacific Lode No. 1, holds about three feet in width, all ore of fair milling grade, and improving both in width and quality as advance is made, and we are opening a valuable body of ore. All the ground above the tunnel level is well ventilated, and this ore can be stoped out at small expense. The west cross-cut, 500-foot level, is in easy working ground, and rapid progress is making. The cross-cut west on the 600-foot level is still in porphyry of about the same character as at last report; progress for the week, 5 feet; total length, 101 feet. The west cross-cut, 500-foot level, has been advanced 19 feet; total length, 50 feet. The north drift, tunnel level, was advanced 5 feet; total length, 26 feet.

GLYNN-DALE.—Advanced 13 feet the past week in north and south drifts. The rock in the north drift has been quite hard the past week, but has changed somewhat the last few days. The south drift continues blocky, and breaks easily. General outlook very promising.

GOODSHAW.—The main vertical shaft was sunk 13½ feet during the past week, making its depth 42 feet below the 600-foot level. No water has yet been encountered, nor is any expected before the 750-foot level is reached.

JUPITER.—East cross-cut No. 3 is in 24 feet; progress for the week, 15 feet. The rock is quite hard, but works well. The flow of water has increased some, but not enough to interfere with the work.

NOONDAY.—The 212, 312, and 412 stopes are looking well at the different points from which we are taking ore. The drift on the west prong of the vein on the 412-foot level was extended 20 feet during the week; total length south of the shaft, 409 feet. The vein is looking well, and the ore is of good quality. Drift No. 1, 512-foot level, is now 409 feet south of the shaft, 19 feet having been added during the week past. The drift is in a large body of quartz. The combination

shaft to-day is 66 feet below the 512-foot station, 17 feet having been added during the past week. The rock is very hard.

NORTH NOONDAY.—The stopes of the 312 and 412-foot levels continue to look well, the ore-body being large. The No. 2 drift, 312-foot level, has been extended north 47 feet during the week past; total length of the drift, 470 feet north of the cross-cut. The upraise on the vein is up 17 feet. The combination shaft has been sunk 17 feet during the week; total depth below the 512-foot station, 66 feet. The rock is very hard.

SOUTH BULWER.—The main vertical shaft is now down 46 feet below the 550-foot level, and sinking is prosecuted with all possible dispatch. The new engine and pumping machinery have not yet arrived, but the machinery now in use is capable of continuing the work and handling the water for some time to come.

SYNDICATE.—Still stoping ore from the 300-foot level, and also taking ore from the old 100 and 200-foot level stopes, which is of much better grade and giving very satisfactory returns through the company's mill, which is running steadily.

TIOGA CONSOLIDATED.—We learn from reliable authority that a cross-cut is running east on the 982-foot level, with good indications, and that the flow of water is not so heavy as heretofore.

CANADA.

We gather the following information of the exports of Canadian mine products from the trade returns:

In 1878, the products of the mines were $2,816,347, of which $2,472,979 were sent to the United States. In 1879, the exports were $3,082,900, of which the United States took $2,636,334, and 1880 $2,877,351, the United States taking $2,495,624. The principal articles were coal, gold, and silver, British Columbia supplying $700,000 in coal and $961,000 in gold; Ontario, $150,000 in silver; and Nova Scotia, $121,000 in gold and $238,000 in coal. The value of the copper ore was about $150,000, of which Great Britain took $80,000 and the United States $70,000, and Great Britain took $108,000 in phosphates.

PROVINCE OF QUEBEC.

A party of New York capitalists lately visited the city of Montreal for the purpose of arranging for the purchase of 6000 acres of land, containing gold mines, in the Upper Chaudiere region of the Beauce District.

We have received a prospectus of the St. Francis Gold Mining Company, organized under the laws of the State of Maine, for the purpose of working gold mines in the Chaudiere Valley, Beauce County, P. Q. The capital stock is placed at $350,000, in 70,000 shares of $5 each; treasury stock, 10,000 shares.

PROVINCE OF NOVA SCOTIA.

By advices from Halifax, March 2d, we learn that the Mount Uniacke gold mines have been sold to an American company for $50,000.

Extensive gold mining operations are going on at Tangier, Sheet Harbor, and other localities in Eastern Nova Scotia.

The Hall-Anderson gold property, at Fifteen-mile Stream, Halifax County, is reported to have been sold to English parties for $175,000.

COLORADO.

CLEAR CREEK COUNTY.

ATLANTIC PACIFIC.—The east end of the tunnel is now in about 200 feet, and has just cut another large lode.

DIAMOND TUNNEL.—The following report is up to the first of March. Tunnel extended 16 feet; total, 1618½ feet. Developments continue to show improvement in quantity and quality of ore in most of the lodes. No. 3 lode shows two ore-veins from 2 to 4 inches. No. 5 lode, stope from U level, shows the largest ore-vein for several months—carrying considerable gray copper. No. 6 lode continues to show its usual amount of rich ore. Stope has been begun on No. 8 lode, and the ore—of which there has always been a large amount of low-grade—now appears to be improving in quality.

HUKILL.—The Georgetown *Miner* says: There are about thirty men employed in and around the Hukill. The principal feature of development in progress is running a drift northerly under the creek to connect with the shaft north of the creek, on the old workings. The drift is about 200 feet below the bottom of the creek, and will strike the perpendicular of the shaft some distance below the bottom, and a raise will be made to connect the two points. The usual stopes are running, and the mine is producing ten tons of concentrating ore and a thousand pounds of first-class per day. There are now about two thousand tons of concentrating ore on the dump which will average about $30 per ton in gold, silver, and copper. The first-class is worth $50 per ton as per returns from the smelters.

SHIVELY.—The Georgetown *Miner* says: The work is now mainly confined to the lower levels. The 185-foot level east of the shaft carries one to three inches of ore, two late runs of which milled 401 and 399 ounces of silver per ton. Five tons sold last month ran 398 and 383 ounces of silver per ton. It will be seen that the grade of the ore continues about the same as it has done for years. This was all of one class, or rather of no class, but altogether. The 135 and the 75-foot levels are both running westerly. All the machinery is in excellent order, and the inclined tramway is all that could ever have been expected of it.

LAKE COUNTY.

BIG PITTSBURG.—This property, upon which development-work is pushed vigorously, is looking well. The Leadville *Herald* says: Three drifts have been driven from the McCormick shaft to the north end lines of the claim, and raises made, all of which show ore similar in appearance to the first-class ore from the Matchless and Hibernia. The only difference is, that it does not carry the chloride of silver—a very important one, at first thought—but the ore is near the outcrop, and has the appearance of having been leached. A shaft is now sinking on the Carbonate Hill slope, on the Stray Horse claim, which will unquestionably meet with success.

BREECE.—About 60 men are now employed on the Breece iron mine, and it is producing over 20 tons of ore per day, which is shipped to Pueblo for treatment.

CHRYSOLITE.—The ore-shipments from the Chrysolite are now from 50 to 60 tons daily. The *Democrat* says that the entire product of the mine, as it now goes to the smelters, is expected to average $100 net per ton, the ore all being either a fine sand or galena. An idea of some of the ore-faces in the mine may be formed from the statement that on Monday last two miners broke down and sent to the surface about 45 tons of ore, which will net $7000. During the past week, 518 linear feet of drifts, raises, and winzes were made. During February, although the production was suspended after the fourteenth of the month, the net returns from the smelters aggregated $51,800; the expenses for the same month amounting to $23,740; leaving a net profit of about $28,000. Through the courtesy of Manager Rolker, the mining editor of the *Democrat* was yesterday favored with a tour through the mine, and was really astonished at many of the fine ore-faces presented. During the greater part of February, drifts were extended on the second level to the north and west, and tracks laid. Upraises were then made, and in the majority of instances, fine bodies of ore were encountered. Among them is a breast of sulphate of lead, varying from three to ten feet in hight, and opened for about 30 feet. Apparently the same body of ore is next encountered in a drift about 25 feet farther north, and again in the next drift north. There are two or three other magnificent faces of sand north and west of the Roberts, from 5 to 8 feet in thickness, and giving every indication of proving large and continuous. The places where good streaks of sand and galena, ranging from one to two feet in thickness, are exposed to view are almost innumerable. The finest ore-chutes are nearly all located in the virgin ground directly south of Carboniferous No. 5 shaft, and extending westward beyond Chrysolite No. 2 shaft. Some very fine-looking lead carbonates and galena are also exposed in the first drift east of the Roberts shaft, and running north. The prospect-work which has been done during the past 60 days has certainly opened up very rich additional resources and has greatly improved the prospective as well as the present value of the property.

DENVER CITY.—The Leadville *Herald* says: No work has been done in the mine for six weeks. The shaft-house, probably the finest in the State, is completed. The large new machinery has not arrived. It is manufacturing as fast as possible in Denver, and as soon as it arrives will be put up and active mining will be prosecuted. With the small machinery formerly on the mine, it was found impossible to control the water and prosecute development, and therefore work was suspended until all should be ready.

EVENING STAR.—A curious development has been made in No. 9 drift, one of the lower workings of the Evening Star mine. Mr. W. S. Ward, the manager, states that, in exploding a blast, the end of the drift exposed a cave which on investigation proves about 25 feet in length and divided into two chambers Overhead is a fine, large body of good ore, and the floor of the cave is covered with carbonates that have apparently fallen from above. The mine is shipping 60 tons of ore daily.

HENRIETTE.—The Leadville *Democrat* says that during the first ten days of March the Henriette has shipped on an average 48 tons of ore per day. The vein has recently taken a very abrupt pitch to the eastward. The face of the incline still shows ten to twelve feet of good ore. In a cross-cut to the north, a fine body of gray sand is reported to have been encountered recently.

HIGHLAND CHIEF.—This mine, on Breece Hill, has now 80 tons of ore on the dump that will assay 100 ounces of silver to the ton and about 42 per cent of lead. There are also about 120 tons of second-class ore on hand that will average 60 ounces of silver to the ton with about 32 per cent lead. A shaft is sinking with the expectation of striking the lower end of the contact. Drifting is also going on from the No. 4 level in a southwest direction. A force of forty men is at work on the mine.

ROBERT E. LEE.—From a late number of the Leadville *Herald*, we extract the following report of the present condition of this mine: The main shaft is 220 feet deep, the first station being at 160 feet. From here following a main drift to the northeast, the ore is found rapidly pitching to the east. Following this by a rapid incline, and then down a winze of 20 feet, ore is found in large quantities. The end of this drift is 74 feet from the Sliver line, and exposes ten feet of ore in the breast, while some distance back neither side of the drift has been disturbed. This last drift from the foot of the winze runs nearly due east, and for the information of our readers here, who know the location, it may be stated its face is just under the steps of the office. Another drift to the northeast, which has reached a point under the nearest end of the crushing building and still 70 feet from the Sliver line, has almost equally good showing. From the east drift, at a point some fifteen feet from the face, a cross-cut is to run to the north to connect with the new shaft being sunk. A south shaft toward the gulch, following along the side of the porphyry dike, which seems to extend on the south side from the Hibernia, is following a wonderfully rich ore. Samples show 2000 to 5000 ounces, while for a width of 20 inches it will mill-run 500 ounces. Beside this, in the south drift, a large vein of good smelting ore, running from 50 to 200 ounces, is exposed. The reason this portion of the mine has heretofore received so little attention is because the rapid pitch of the vein and the large amount of water in the mine rendered it impossible. Since the Sliver pump was started, however, the ground is drained, and for this reason the east portion of the mine is now receiving special attention. From the main shaft, a level extends west to the Hibernia line. Just beyond the No. 1 shaft, which shaft is now used only for a ladder-way to the mine, a new drift and partial upraise have been made to the north, showing five feet of 200-ounce ore. It is here 45 feet through to the Matchless line, and in the Matchless, on the line opposite, a good ore-body exists. This work has been started within the past few days, and is one of the most important developments ever made in the Lee mine. There is not only a large ore body, but there is a great amount of territory here unexplored. Northwest from the main shaft is an immense ore-body developed, but the ore here is of lower grade and runs but from 20 to 40 ounces to the ton. In addition to the workings described above, a new shaft is sinking north from the office which will soon connect with the other workings. This shaft is now 180 feet deep. There is also a south shaft on the property across the gulch. This has passed through 5 feet of ore that runs 40 to 50 ounces. Work has just been resumed on this shaft, and drifts are being run on the ore-body. The large territory, about 12 acres in all, now belonging to the Robert E. Lee Company, as well as the large ore-bodies exposed at present, make it certain the new company has a prosperous future before it.

MINER BOY.—The Leadville *Democrat* says: The Miner Boy mine, located on Breece Hill, continues to be vigorously worked, and with success. The main shaft on the property, which is now 260 feet deep, will be sunk still deeper, and other efforts made to more completely develop and disclose its resources. The work recently done has developed additional rich ore, and there can be little question but that with further prospecting, increased ore-reserves will be opened up. In the fifth level, running into the hill, the mineral has been shown to have undergone much less change from the action of water and time than nearer the slope of the hill, and it is much richer. In driving this drift a few days ago, a very high grade of ore was struck, consisting of gray copper and iron pyrites rich in silver and gold. The vein at the point where the change in the mineral was first encountered is about four feet in width, and gives great promise of opening up still better with depth.

SAN JUAN COUNTY.

PALMETTO.—The Lake City *Silver World* says: Since our last report of work on the Palmetto mine, the vertical shaft has been sunk to a depth of 177 feet. Three shifts are employed; they sink about one foot in 24 hours. Thirty-five men in all are employed. Our last report stated that a tunnel had been run from the shaft to tap the vein, which it did in about 24 feet. Since then, drifts have been run along the vein—that toward the north is in sixteen feet, that toward the south eight feet. On each of these drifts, the men make about 18 inches per day. The vein is four feet wide, with two pay-streaks, the one on the hanging-wall being six inches wide; the other, on the foot-wall, is 18 inches wide.

DAKOTA.

BATTLE CREEK.—The Rapid City *Journal* has the following regarding this hydraulic company: The flume, taking the water from Battle and Iron creeks, is finished, in good order to convey it to the many bars and gravel hills belonging to the company. Into this flume water will be introduced as soon as the frost is out of the ground, and sluicing will begin at once. The bars along the stream have been thoroughly prospected, and the foreman, who has been in the mines for the past thirty years, asserts that he has never before seen such large bodies of gravel containing so much gold throughout. The gravel deposits are from twelve to fifty feet in depth, and prospects can be obtained from grass-roots to bed-rock. With the good volume of water the company will turn upon the ground, a great deal of the gravel can be handled in a short time, and yet the pay-dirt is so plentiful that it will not be exhausted for years to come. Among the claims owned by the company and best prospected are Mameluke Hill, Boswell Hill, Gold Point, and Pennsylvania Hill. Arrangements are making at the present time so that every thing will be in readiness to work advantageously upon the opening of spring. This will be one of the greatest placer mining enterprises yet started in the Black Hills, and gives great prospects of success. Having control of the gulch, the company has a splendid dump, and the facilities for working the ground are excellent.

IDAHO.

CHARLES DICKENS.—The Oxford *World* says: The Charles Dickens tunnel is in 700 feet on the vein, and is getting into richer ore every day. The vein is now 7 feet wide, and not a pound of waste in it. The ore all through is much richer than any ever before discovered in the mine.

CUSTER.—The same paper says that the ore taken from the Custer mine is sent to the mill without assortment, and will work about $400 per ton. The low-grade already worked goes from $150 to $175. Huge shipments will soon be made. The mine will go on the stock board in New York in two or three months.

MEXICO.

Nine antimony mines have been discovered near Alta Sonora, and ore is shipping to San Francisco.

MONTANA.

From late dates of the Butte *Miner* we condense the following:

ALICE.—All the upper levels of the Alice are daily producing their average amount of ore. The daily output of ore reaches fully 80 tons per diem without crowding the hoisting power of the machinery, and it makes comparatively a slight impression on the large bodies of ore opened in the upper levels of the mine. Work at the 700-foot level is progressing.

ANSELMO.—In the east shaft, a level is running toward the west shaft for the purpose of making a connection, and it is within fifteen feet of connecting. Stoping has commenced in the east level of the shaft, on a vein of rich ore. The west shaft is over 200 feet deep. This is intended to be the main shaft, where the steam hoisting-works are building. The boilers are in place, and masons are putting up the foundation for the engine. The steam machinery will be in working order as soon as it can be put up.

BELL.—Work in the east level is going forward. The driving of the level results in opening the mine to better advantage, as each foot of developing-work opens the mine more thoroughly and brings to sight a strong vein to the east that is not diminishing in size or weakening in the rich character of the ore. The arrival of a new and powerful engine and machinery for the steam hoisting-works is expected.

STEVENS.—On the west or main shaft, the work of dropping the shaft has been suspended. The running of levels from this shaft is under fair headway, and the mine is not quite as wet as heretofore. The work of developing has been attended with considerable difficulty; the water coming in necessarily made the work go slow. The shaft is in excellent condition, and the work of level running will be continued day and night. In the middle shaft, work has been temporarily stopped.

NEVADA.

THE COMSTOCK LODE.

We give below a summary of Comstock news, taken from the Gold Hill *News* of March 9th, together with authentic reports of mines named up to that date: The mines are still laboring and the market is still waiting results. The mines have the best part of it; for it is always easier working than waiting. Yet it is no easy job to do the dead-work in the mines, which must be accomplished before a development can be made. And working away is about all that can be said of the mines. Sierra Nevada gets ore, as usual, in the same stopes south of the winze from the 2400 to 2500 level and near the 2400 level. The stopes north from the Union line gave out, or nearly so, more than a week ago. The mine is prospecting, also, the ore-vein found while cross-cutting east on the 2300 level, and 900 feet north of the incline, and is now following it up another 50 feet. The bonanza mines have found some more good ore east of the old stopes on the 1650 level, and are taking it out. It is officially announced that the 2600 level of Union is to be opened from the 2700 level. The words are no plainer than have been actions in this direction for the past three weeks, and are therefore hardly necessary. It is both good mining and good economy to open the 2700 level first; for that level can be opened almost as quickly as could the 2600 level have been shown up, and the present plan saves much work which would have been in the end almost useless. It will be remembered that the plan laid down is to open the 2700 level all along from Sierra Nevada to Best & Belcher. Bullion is getting considerable fine quartz on the 2450 level. It reaches at least from 100 feet south of the shaft to the north line of the mine, and is known to be of good width. It will, in fact, be hard luck if something worthy of consideration is not developed on the 2450 level of the mine. At any rate, things look well as far as the work of cross-cutting has progressed. Crown Point still gets from 35 to 40 tons of ore per day, which pays for mining and milling. The bullion is coined at the Carson Mint. Belcher is working in earnest to prospect anew its 400 and 500 levels. That it will get ore in the direction of these workings and re-prospectings is almost beyond doubt. It remains to be seen what the quality will be. It will most assuredly pay mining and milling, if no more; for prices have been reduced on mining supplies considerably, and milling is much cheaper than it was when the ore in this part of the mine was run by and left as of too low a grade to be worthy of consideration when better things were about.

BELCHER.—The southwest drift on the 520 level has been run a distance of 50 feet, and is not in to the vein yet. On the 400 level, the old west drift is reopening; distance to date, 50 feet; distance to the face, 170 feet. The pumps are running seven strokes per minute and throwing 40 inches of water, holding the influx below the 2160 level. Repairs on bobs will be completed this week.

BULLION.—Cross-cutting east on the 2450 level. Cross-cut No. 1, 100 feet south of the shaft, is in quartz of low grade, but which looks well. Opposite the incline, the cross-cut is also cutting through the casing into the vein, and is showing also very fine quartz. Another cross-cut, 80 feet north of the shaft, is started, and the vein will be thoroughly prospected. The diamond drill has been run north 150 feet, and found quartz.

C. & C. SHAFT.—The sump below the 2500 level will be completed this week, when the station at that level will be cut out, and the joint Consolidated Virginia-California east drift heretofore started will be carried on at the same time.

CALIFORNIA.—East of the old stopes on the 1650 level more ore has been found and of good milling quality, which is extracted. The yield of last week continues. For workings joint with Consolidated Virginia, see report of that mine. The joint Ophir east cross-cut on the 2500 level has reached a length of 285 feet, and is progressing well.

CONSOLIDATED VIRGINIA.—The raise joint with Best & Belcher from the 2300 level is up 20 feet. On the 2500 level, the joint California west cross-cut toward the C. & C. shaft is making over four feet per day; total length from the main lateral drift, 45 feet. The drift south, being the main lateral drift from the Ophir on the 2500 level, makes three feet per day; total length from the California line, 82 feet. The stopes recently opened on the 1650 level east of the old ore-body continue their yield of good milling ore.

CROWN POINT.—Still extracting from 40 to 45 tons of ore per day from the workings between the 1200 and 1300 levels. Breaks in the dam at the Mexican mill have hindered milling, but the hinderance is over.

MEXICAN.—The work of timbering up the joint Union east cross-cut has been commenced preparatory to its use in sinking a joint winze from the 2500 to the 2700 level; total length of the cross-cut, 426 feet. For workings joint with Ophir, see report of that mine.

OPHIR.—Sinking the joint Mexican east working winze below the 2700 level and putting in the tank at the 2700 station. For work joint with California, see report of that mine. Repairing the incline at the 1900 station.

OVERMAN.—Running north on the 2275 level and making good progress toward Belcher; total length of the drift, 75 feet.

SIERRA NEVADA.—The raise from the 2300 level to connect with the main shaft is again in hard rock, which does not admit of as good headway as was made last week; total length, 624 feet. West cross-cut between the 2200 and 2300 levels has been discontinued, and now a raise is making on the ore-vein to test it up another 50 feet. Excellent progress is made in the north drift on the 2500 level; total length, 675 feet. For workings joint with Union, see report of that mine. The stopes continue their usual yield of from 35 to 40 tons per day.

UNION CONSOLIDATED.—Still chambering for the joint Sierra Nevada east winze from the 2500 to the 2700 level. For workings joint with Mexican, see report of that mine.

UTAH.

PARLEY'S PARK.

From the Park Mining *Record* we have the following:

CLIMAX.—It is stated that the ore-body has increased to full five feet of clear ore. It is increasing as the drift is pushed farther west. A new working-shaft has been started between five and six hundred feet farther west. A large force of men are at work. Ore is shipped regularly to the smelter.

EMPIRE.—The furnaces were fired up recently and banking commenced. The water was between the 200 and 300 levels. The first 24 hours it was lowered five feet, but from that point it receded very slowly. The Sampson pump will be put in the 200 station, and a sinking pump used to throw to it. The grade for the new boiler-house will be completed next week. A vast amount of rock necessarily has been removed. When the new boilers are ready to start, there will no longer be any need of fearing the water, as a lack of steam power has been the only drawback.

LACKAWAXEN.—The tunnel cut the main vein recently at a distance of 225 feet from the mouth. The vein was found to carry a 4-foot body of milling ore.

ONTARIO.—The shaft is down 815 feet; within a week it will be finished to the required depth, 825 feet, when the station will be cut. It is reported that the company intends to build a tramway from the mine down to the mill, and on to the depot. It will handle all the coal, ore, machinery, etc.

PROPOSALS AND SALES.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Laying 300 feet of 36-inch Water Pipe; William C. McCarthy, office of the City Controller, Pittsburg, Pa.	March 19, 1881.
Supplies for the New Water-Works; William C. McCarthy, office of the City Controller, Pittsburg, Pa.	" 19, "
Furnishing Supplies for Keeper of Municipal Buildings, Brooklyn, for the year 1881; John French, Commissioner of the Department of City Works, Municipal Building, Brooklyn	" 19, "
Constructing the Sunflower Extension of the Greenville, Columbus & Birmingham Railroad from Stoneville to the Sunflower River, twenty miles; Bids will be received separately for the Grading, Bridging, Crossties, and laying Track, or for the entire Work, the Iron alone being furnished; H. T. Irish, Secretary, Greenville, Miss	" 21, "
Designs for Statuary to be placed on the Four Pedestals at Blackfriars Bridge: the designs may be submitted either by drawings or models; if by drawings, to be either in chalk, charcoal, pencil, ink, or sepia; if by models, in clay, plaster, or other convenient material; the designs in either case to be prepared to a scale of one inch and a half to the foot; Architect's Office, Guildhall, London, England	" 21, "
Leases of Certain Corporation Piers and Bulkheads will be offered at public sale, by order of the Department of Docks, at the Exchange Salesroom, No. 111 Broadway, New York City	" 22, "
Furnishing all the Labor and Materials required to complete the Graduation and Masonry for Third and Fourth Tracks on line of Pennsylvania Railroad between Ardmore and a point west of Radnor Station, a distance of five and one quarter miles; Plans and specifications can be seen at office of Engineer of Maintenance of Way, No. 233 South Fourth street, Room 14, Philadelphia, Pa.; William H. Brown, Engineer of Maintenance of Way	" 24, "
Transportation of Military Supplies in the Department of Texas during the fiscal year commencing July 1st, 1881, and ending July 30th, 1882. Blank proposals, form of contract, and printed circulars, stating the estimated quantities of supplies to be transported, and giving full information as to the manner of bidding, conditions to be observed by bidders, and terms of contract and payment, will be furnished on application to this office, or to the offices of the Quartermasters at Fort Brown, Texas, New Orleans, La., and St. Louis, Mo.; Benjamin C. Card, Chief Quartermaster, San Antonio, Texas	April 12, "
Monument to be Erected in Rome for late Victor Emanuel II., First King of Italy; President of the Royal Commission, Cairoli, and the Secretary of the Royal Commission, etc., Rome, Italy	Sept. 21, "

New City Hall at Philadelphia.—The commissioners intrusted with the erection of the new City Hall awarded the following contracts March 16th: Galvanized iron clamps at 5 2-10 cents per pound. Cast-iron bricks, at 2¼ cents per pound. Beam slate, at 34 cents per superficial foot. Laying brick arches, as follows: Enamel bricks, basement story, $15.50 per thousand; hard bricks for basement, first, second, third, and fourth stories, $3.25 per thousand; roof, $3.50 per thousand. Coal, as follows: Egg, white or red ash, $4.97 per ton; stove, white or red ash, $5.14; nut, white or red ash, $4.79; egg, Lehigh, $5.04; stove, Lehigh, $5.19; nut, Lehigh, $4.85; broken, Lehigh, $4.97.

Lehigh & Hudson Railroad.—The first contract for grading the Lehigh & Hudson Railroad, which is to connect the New York & New England with the Lehigh coal region, has been let. It is from Belvidere, N. J., to Danville. The second section, from Danville to Andover, is to be let shortly.

Baltimore & Ohio Railroad.—It is rumored in Butler County that the Baltimore & Ohio Railroad Company has purchased the Pittsburg & Western, Butler & Parker, and Foxburg & Clarion narrow-gauge railroads, and intends building the connecting links from Evansville to Butler, and from Parker to Foxburg, and a road from Clarion to either Ridgway or Warren, so as to make the whole an important outlet for the oil-producing and lumber country.

Newburg Branch of the Erie Railroad.—The tracks of the Newburg branch of the Erie Railroad, from Newburg, N. Y., to Gray Court and Turner's, were narrow-gauged March 17th. The work began at about nine o'clock in the morning and was completed by 3.30 in the afternoon. The length of the two branches and switches is 40 miles. Two hundred men were employed.

ASSAY DEPARTMENT OF THE ENGINEERING AND MINING JOURNAL.

This department is opened for the benefit of miners, prospectors, and others interested in minerals.

Replies will be made in these columns, and *without charge*, to questions asked regarding the nature and commercial value of minerals, and of samples sent.

Assays determining the actual composition and value of ores will be made at the following rates. All assays are made with the utmost care by the most experienced and competent assayers:

Assay for gold	$3.50	Assay for copper	$3.00	Assay for iron	$4.00
" silver	3.00	" lead (wet)	3 00	" nickel and	
" gold and silver	5.00	" zinc	5.00	cobalt	10.00

The amount should invariably accompany the order, and expressage or postage must always be prepaid.

Communications, samples, etc., to be addressed to

ENGINEERING AND MINING JOURNAL, 27 Park Place, New York (P.O. Box 4404).

FINANCIAL.

Gold and Silver Stocks.

NEW YORK, Friday Evening, March 18.

There has been a large business in mining stocks during the past week at well-maintained prices. There have been no particular features to the dealings.

Alice records sales of 500 shares at $7.50@$8. Amie has had a moderate business, with some inclination to weakness; the sales aggregate 54,875 shares at 53@45@51c. Argenta has only been dealt in to the extent of 200 shares at 20c. Barbee & Walker records sales of 100 shares at $3. Belle Isle has been very quiet and a little weak, the sales amounting to 2600 shares at 58@50c. Bodie has been quiet, with sales of 290 shares at $7@$6.50@6.75. Breece only records sales of 100 shares at $1.90. California has been very much neglected, the sales amounting to 1770 shares at $1@95c. Caribou began to receive some attention yesterday; the sales amount altogether to 1660 shares at $2¼@$2¾. Chrysolite has been exceedingly active and a little strong; the sales amount to 22,976 shares at $6.75@$7.13@$6.88. Climax has been quiet and somewhat irregular; the sales amount to 8400 shares at 58@64@58c. Consolidated Virginia has had a moderate business at about steady prices; the sales aggregate 4940 shares at $1.70@$1.55. Copper Knob has been dealt in to the extent of 19,400 shares at 6@5c. The sales of Deadwood amounted to 525 shares at $10¼@$10. Dunkin has been quiet and weak, but grew stronger at the close, the sales aggregating 4050 shares at $1.75@$1.55@$1.75. Eureka has been quiet and a little weak, the sales amounting to 470 shares at $27@$24@$25. Excelsior has been dealt in to the extent of 415 shares at $6@$5.50. Findley has been quiet and steady, with sales of 3600 shares at 26@28c. Freeland has been dealt in to the extent of 600 shares at $1.70@$2. Gold Stripe has had a moderate business at steady prices, the sales amounting to 4600 shares at $3.10@$2.85. Grand Prize only records sales of 500 shares at $1@95c. Great Eastern has had a moderate business at steady prices, the sales aggregating 12,100 shares at 32@30c. The sales of Green Mountain aggregate 1500 shares at $5.75@$6.25. Hale & Norcross was dealt in on Saturday and to-day to the extent of 150 shares at $3.25@$2.90. Hibernia has been the most active stock on the list, and has shown great strength; the sales aggregate 309,385 shares at 61@97c. Homestake has been quiet, with sales of 150 shares at $28@$26.50. Horn-Silver has been active and, for a time, weak, although developing some strength during the last two or three days; the sales amount to 2105 shares at $8.50@$10@$9.75. Hukill has had a very fair business at declining prices, the sales aggregating 13,085 shares at $1.35@$1.10. Independence has been quiet and steady, with sales of 1500 shares at 37c. Leadville has had a moderate business at strong prices, the sales amounting to 4700 shares at 75@90c. Little Chief has been quiet and weak, with sales of 13,400 shares at $1.50@$1.30. Little Pittsburg has had a moderate business at prices a little weak; the sales aggregate 3280 shares at $3.75@$3.25@$3.50. The sales of Moose amount to 23,900 shares at $1.80@$1.50. Northern Belle has been quiet and somewhat irregular and weak; the sales amount to 420 shares at $14.63@$12.50. Ontario has been very quiet, with sales of 160 shares at $36¼@$35¼. Ophir has been dealt in to the extent of 300 shares at $3.80@$4; and Plumas, 200 shares at $2. Rising Sun records sales of 3200 shares at $2.90@$3.05. The sales of Robinson Consolidated amount to 600 shares at $7.75@$8. Starr-Grove has been quiet but very strong, the sales aggregating 700 shares at $5@$6. Stormont has had a moderate business at about steady prices, the sales amounting to 2100 shares at $2@$2.13. Sierra Nevada has been dealt in to the extent of 80 shares at $6.13. Silver King records sales of 200 shares at $22. Spring Valley has been quiet and steady, with sales of 6640 shares at $3.10@$2.95. Standard was quiet and weak, with sales of 675 shares at $26@$25¼. Tombstone has been dealt in to the extent of 525 shares at $6.13@$6.

Alta-Montana has been a shade weak, with sales of 2100 shares at $2.25@$2.10. American Flag has been about steady, with a business of 15,100 shares at 25@31c. Barcelona has been quite active and weak, with sales of 10,100 shares at $1.25@$1.05. Bechtel Consolidated only records sales of 300 shares at 60c. Bald Mountain has been very quiet at 10@9c., with sales of 1300 shares. Bonanza Chief has been dealt in to the extent of 5700 shares at 29@31c. Bull-Domingo has been quite active but very weak, the sales aggregating 11,003 shares at $3.40@$2.20. Boulder Consolidated has been exceedingly active and quite irregular; the sales amount to 46,590 shares at 96@64@77c. Boston Consolidated has been dealt in to the extent of 11,600 shares at 73@83@74c. Big Pittsburg has been quite irregular and fairly active; the sales aggregate 21,067 shares $2.25@$4.45@$3.25. Black Jack has had a moderate business at steady prices, the sales aggregating 9000 shares at $1@$1.15. Buckeye has received liberal attention at about steady prices, the sales amounting to 12,200 shares at 21@19c. Bulwer was quiet and steady, with sales of 550 shares at $1.95@$2.05. The sales of By and By amounted to 2600 shares at 15c. Calaveras has been steady under a moderate business, the sales aggregating 26,850 shares at 23@20c. Caledonia, B. H., has been weak and quiet, with sales of 900 shares at $2@$1.50. Catskill has been quiet and steady, the sales aggregating 1075 shares at $6@$6.25. Central Arizona has been dealt in to the extent of 1200 shares at $5.25@$4.88@$5.13. Cherokee has had a liberal business at steady prices, the sales amounting to 5800 shares at $2.10@$2. Consolidated Imperial has been quiet and steady, with sales of 1300 shares at 11@14c. Consolidated Pacific has been dealt in to the extent of 4300 shares at 82@70c. Crowell records sales of 1000 shares at 5c. Dahlonega has been fairly active and steady, with sales of 12,200 shares at 9@7c. Durango has been dealt in to the extent of 13,100 shares at 18@15c. Goodshaw has been quiet and steady, with sales of 3400 shares at 70@75c. Glass-Pendery has had a very fair business at weakening prices, the sales amounting to 4600 shares at $2.40@$1.95. Granville has ranged between 4@3c., with sales of 35,700 shares. Hortense records sales of 41,600 shares at 55@70c. Iron Silver has been quiet but steady, the sales aggregating 1100 shares at $3.50. Lacrosse has had a moderate business at steady prices, the sales aggregating 8200 shares at 29@26c. Legal Tender has had a liberal business at strong prices; the sales aggregate 4900 shares at $2.75@$3.75. Lucerne has had a moderate business at about steady prices, the sales aggregating 20,300 shares at 9@13c. Mariposa Preferred has been a shade weak, with sales of 175 shares at $6.25@$5.50@$6. Mariposa Common has had a moderate business at prices somewhat weak; the sales aggregate 4618 shares at $5@$3.50. Mayflower only records sales of 100 shares at 35c. Mineral Creek has been liberally dealt in at improving prices; the sales aggregate 41,800 shares at 30@55c. Miner Boy has been quite active and fairly steady, the sales amounting to 36,300 shares at $1.65@$1.55@$1.60. Mexican only records sales of 150 shares at $4.13@$4.25. Moose Silver has been dealt in to the extent of 200 shares at $1.65. Navajo has been fairly active at irregular prices, the sales aggregating 6625 shares at $2.45@$3@$2.65. North Standard has had a moderate business at steady prices, the sales amounting to 6100 shares at 25@22c. Quicksilver Preferred has been dealt in to the extent of 1700 shares at $60⅞@$63¾, and Common, 600 shares, at $15@$15.75. Rappahannock has had a moderate business at steady prices, the sales aggregating 4400 shares at 15@14c. Red Elephant has been quiet and a little weak, the sales amounting to 13,400 shares at 33@29c. The sales of Silver Cliff amount to 3070 shares at $5.50@$4.75. Silver Nugget has had a moderate business at quite irregular prices; the sales amount to 23,750 shares at 5@10c.; 100 shares of Silver Nugget, new stock, sold at 40c. South Hite has been dealt in to the extent of 1300 shares at 55@45c. Sutro Tunnel has had a fair business at irregular prices; the sales amount to 23,285 shares at $1.13@$1.30@$1.25. Tioga only records sales of 400 shares at 50c. Tuscarora has had a moderate business at weak prices, the sales amounting to 5700 shares at 28@14c. Unadilla records sales of 2700 shares at 17@15c. Union Consolidated has been quiet, with sales of 100 shares at $7. Vandewater records sales of 11,200 shares at 40@59@53c. Willshire has been a little weak and, at the same time, quiet, the sales amounting to 735 shares at $1.45@$1.30@$1.35. Allouez has been dealt in to the extent of 100 shares at $3.85. Cheyenne records sales of 2100 shares at 69@40@65c. Head Center has been quiet and steady, with sales of 1000 shares at $4.05@$3.80.

UNLISTED QUOTATIONS.

Mr. L. V. Deforeest, No. 70 Broadway, under date of March 18th, 3 P.M., reports the current quotations of unlisted stocks as follows:

	Bid.	Offer'd		Bid.	Offer'd
Barcelona.....	$1.10	$1.20	North Hite.....	....	.75
Breece.....	....	1.95	O. K. & Winnebago.....	....	1.00
Bald Mountain.	.09	.10	Patagonia.....	....	.75
Carbonate Hill.	....	.35	Plata Verde.....	....	2.50
Empire of Cal.	....	2.50	Rico.....	....	.75
Empire, Utah..	.50	1.00	Rocker.....	....	.50
Freeland.....	1.75	....	Sacramento.....	....	1.50
Grand View....	....	.75	Santa Cruz.....	....	.75
Highland Chief	....	8.00	Sir Rodr'k Dhu.	.15	.30
Julian.....	....	2.00	Stormont.....	2.00	2.40
Lowland Chief.	.25	....	Silver Nugget..	.08	.10
Mack Morris...	....	.40	Vandewater G..	.51	.52
May Flower. ..	.40	....	Con. Arizona...	....	1.50
Native Silver...	....	.50			
New Philadel...	....	.25			

The Crowell Gold Mining Company is to be transferred to the North State Mining Company, on the basis of 12 shares of the former for one of the latter.

The outlook for the Silver Reef District does not appear to be very encouraging. The ore-bodies at present exposed do not warrant the payment of $4 per day to the miners, and there do not at present appear to be any indications of a settlement.

OFFICIAL LETTERS.

Big Pittsburg.—The following statement has been issued to the stockholders of this company:

In view of the important developments indicated by messages from Superintendent Wood, and in order to ascertain more clearly the financial outlook, the following inquiry was made yesterday:

Your messages are thoroughly satisfactory. As money of the company is loaned on short call, can you say how much may be required from this office before April 1st?

Superintendent Wood sends the following reply, received this morning:

Don't expect to call upon you for any money; hope to send you some.

Breece.—A letter from the superintendent, dated March 2d, says:

I have to-day struck 4 feet of iron in my new development, the upper incline. We have had the county treasurer restrained from levying on us for taxes on net output until a test case has been decided by the courts. They have raised my assessment some $19,000, making the tax over $600. I have filed a bond to await the action of the court. I have paid the taxes I deemed a proper assessment. About sixty men are now employed, and the mine is producing over twenty tons of ore per day, which is shipped to Pueblo for treatment.

Boulder Consolidated.—The superintendent reports, under date of March 9th, that the total length of the west drift is 370 feet from cross-cut. The vein is somewhat broken in face of drift, and irregular, but has every appearance of improving. The total depth of the first shaft below the station is 52 feet. A stope is now opening in the last ore-body passed through on the lower level, which is showing up well. The mine, upon the whole, is looking very well. If there are no more severe storms, the mill will probably be ready to run by April 1st.

Caledonia.—The superintendent, under date of March 5th, says:

We are working in the open cut, which continues to supply us with good milling-ore. Am cleaning up the mill to-day, having run it since February 13th. During this period, we have averaged 54½ stamps per day. We have employed, during the week ended to-day, 44 men at the mine and 22 men at the mill.

Centennial Sapphire.—The superintendent, writing from Lida, Nev., under date of March 12th, says:

Have men sinking shaft and cross-cutting 80-foot level. Taking out good ore every day. Letters follow.

Chrysolite.—At the regular meeting of the trustees, held on the 15th inst., no formal action was taken on the subject of a dividend. The statements presented to the board showed about $230,000 cash surplus on hand; a probable $50,000 at least to be expected by the 1st of April after payment of the March expenses; the contested tax claims still unsettled: the mine looking exceedingly well; a considerable body of ore in sight, and the extraction of ore proceeding vigorously. The smelter's returns are not yet at hand. The determination of the trustees to maintain beyond all risk an adequate surplus, and to pay no dividends by discounting the future, is the ground of their postponing action in this matter.

Cherokee.—Reports of the superintendent states that this mine is making uninterrupted progress. The heavy snows and great amount of water interfered very much with the work during the winter. The upper workings of the mine are now producing sufficient ore to keep the mill running. The stopes show

GENERAL MINING STOCKS.

Dividend-Paying Mines.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount per share of last.			DIVIDENDS. Total paid to date.	DIVIDENDS. Last Dividend.			HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE. March 12. H.	March 12. L.	March 14. H.	March 14. L.	March 15. H.	March 15. L.	March 16. H.	March 16. L.	March 17. H.	March 17. L.	March 18. H.	March 18. L.	SALES.
Alice				400,000						40,000	Mar.	1880	10	7.50				7.50				8.00				500
Amie Con. s. L	Col.		5,000,000	500,000	10	*				305,000	May.	1880	10	.52	.51	.53	.50	.53	.50	.52	.49	.50	.45	.51	.48	54,875
Argenta, s	Nev	1,500	10,000,000	100,000	100	110,000	Nov.	1880	10	40,000	Feb.	1880	90							.20				.18		200
Barbee & Walker	Ut'h		1,000,000	100,000	10	*				60,000	Nov.	1880	10			3.00										100
Bassick, G. S	Col.		10,000,000	100,000	100	*				25,000	Feb.	1880	25											85¼		300
Belle Isle, S	Nev.	1,500	10,000,000	100,000	100	30,000	Feb.	1880	30	300,000	Dec.	1879	25			.58	.57			.55	.50	.50		.50		2,000
Belcher, G. S	Nev.	1,040	10,400,000	104,000	100	2,250,000	Feb.	1881	50	15,397,200	Apr.	1876	75													
Bodie Cons., G	Cal.		10,000,000	100,000	100	75,000	May.	1879	1 00	1,200,000	Mar.	1880	25	7.00	6.50	6.75										293
Breece	Col.		5,000,000	200,000	25					2,600	Feb.	1880								1.90						110
California, G. S	Nev.	600	54,000,000	540,000	100					31,320,000	Dec.	1879	50	1.00				.95		.95						1,770
Calumet & Hecla, C	Mch		2,500,000	100,000	25	200,000				18,850,000	Feb.	1880	5 00													
Caribou Con., G	Col.	1,400	1,000,000	100,000	10	*				50,000	Mar	1880	10									2¼	2¼	2¼		1,600
Chrysolite, S. L	Col.		10,000,000	200,000	50	*				1,100,000	Apr.	1880	50	7.13	6.75	7.25	6.75	7.38	6.88	7.13	7.00	7 00	6.75	6.88	6.75	22,976
Climax, S. L	Col.		2,000,000	200,000	10	*				180,000	Aug.	1880	90	.58		.59	.58	.64	.57	.54	.53	.60	.55	.58		8,4 0
Cons. Virginia, G. S	Nev.	710	54,000,000	540,000	100	411,200	June	1873	3 00	42,930,300	Aug.	1880	50	1.70	1.55	1.60	1.55	1.60	1.55	1.60	1.55	1.65	1.60	1.70	1.55	4,910
Copper Knob	N.C.		1,000,000	1,000,000	1					15,000	Nov.	1880	02	.06	.05	.05		.05		.05		.05		.05		19,400
Crown Point, G. S	Nev.	600	10,000,000	100,000	100	2,523,370	Dec.	1880	0 50	11,588,000	Jan.	1875	2 00													
Deadwood Terra G	Dak		5,000,000	200,000	25					†200,000	Mar.	1881	25			10				10¼	10					525
Dunkin	Col.		5,000,000	200,000	25					145,212	Mar.	1881	12½	1.70		1.70	1.65	1.75	1.60	1.65	1.55	1.60		1.75	1.60	4,650
Eureka Cons., G. S. L	Nev.		5,000,000	50,000	100	100,000	May.	1876	1 00	4,580,000	Mar.	1881	50			27	24.00	26				.25				470
Excelsior W't'r & M. Co	Cal.	525 acres	10,000,000	100,000	100					850,000	Sept.	1880	25	5⅝	5⅛	6.00								5.50		415
Father de Smet, G	Dak		10,000,000	100,000	100					29,000	Mar.	1881	25													
Findley, G	Col.		200,000	200,000	1	*				8,000	May.	1879	1c	.27	.26	.27		.27	.26	.28		.28				3,000
Freeland	Col.		5,000,000	200,000	25	*				50,000	May.	1880	25			1.70				2.00						600
Gold Strip	Cal.		1,500,000	150,000	10					67,500	Mar.	1881	15	2.90	2.85	3.10	2.95	3.05	2.95	2.95	2.90	2.85				4,630
Gould & Curry, G. S	Nev.	612	10,800,000	108,000	100	3,260,000	Feb	1881	50	3,826,800	Oct.	1870	10 00													
Grand Prize, S	Nev.	1,500	10,000,000	100,000	100	225,000	Dec.	1879	0 75	450,000	Sept.	1880	0 25							1.00		.95		1 00	.95	500
Great Eastern, G	Dak	1,200	300,000	300,000	1	*				10,000	July.	1880	01	.32		.32	.31	.32		.31		.31		.30		12,100
Green Mountain, G	Cal.	4,350	1,350,000	135,000	10	*				137,500	Mar.	1881	05	6.00	5.75	5.75		5.75		6.00				6.25		1,500
Hale & Norcross, G. S	Nev.	400	11,200,000	112,000	100	3,530,000	Dec.	1880	75	1,598,000	Apr.	1871	5 00	3.25										2.90		150
Hibernia	Col.		7,500,000	300,000	25					90,000	Feb.	1881	10	.68	.62	.67	.63	.69	.61	.75	.70	.97	.75	.93	.85	309,385
Homestake, G	Dak		10,000,000	100,000	100	200,000	Apr.	1878	1 00	930,000	Mar.	1881	30			28						26.50				150
Horn Silver, S. L	Uth.		10,000,000	400,000	25	*				200,000	Jan.	1880	25	9.75	8.50	10.00	9.00	9.50		9.75	9.13	10.00	9.75			2,105
Hukill, G. S	Col.	3,288	1,000,000	200,000	5					210,000	Dec.	1878	10	1.35	1.30	1.35	1.25	1.35	1.25	1.30	1.20	1.20	1.15	1.25	1.10	13,685
Independence, S	Nev.	1,500	10,000,000	100,000	100	135,000	Apr.	1880	0 25	225,000	Sept.	1879	25					.57		.57						1,600
Indian Queen	Nev.		250,000	125,000	2					250,000	Mar.	1881	4													
La Plata, S	Col.		2,000,000	200,000	10	*				285,000	Mar.	1881	7½													
Leadville Cons., S. L	Col.		2,000,000	200,000	10	*				150,000	Jan.	1880	15	.79	.75	.80	.75	.75		.75		.87	.78	.90	.85	4,700
Leeds, S	Uth.	3,000	6,000,000	60,000	100	36,000	Feb	1881	15	78,000	Oct.	1878	15													
Leopard, L. G. S	Nev.	1,500	5,000,000	50,000	100	372,500	Apr.	1880	10	162,500	Dec.	1876	50													
Little Chief, S. L	Col.		10,000,000	200,000	50	*				700,000	Aug.	1880	50	1.50	1.45	1.50	1.45	1.50	1.40	1.45	1.40	1.40	1.35	1.40	1.30	13,400
Little Pittsburg, S. L	Col.	30 acres.	20,000,000	200,000	100	*				1,350,000	Mar.	1880	50	3.50	3.45	3.38		3.63		3.75	3.50	3.60	3.25	3.50		3,280
Martin White, S	Nev.	22,900	10,000,000	100,000	100	825,000	Dec.	1880	25	90,000	July.	1879	50													
Moose, S	Col.	30,000	2,000,000	200,000	10	*				550,000	Mar.	1878	25	1.75	1.65	1.80	1.65	1.60	1.50	1.55		1.55	1.50	1.65	1.50	23,900
Napa Cons., Q	Cal.		10,000,000	100,000	100					140,000	Nov.	1880	10													
Navajo	Nev.	600	10,000,000	100,000	100	175,000	Dec.	1880	0 20	25,000	Mar.	1881	25	2.60	2.45	2.75	2.50	3.00	2.75	2.90	2.80	2.85	2.65			6,625
N. Y. & Colorado, G	Col.		1,000,000	50,000	20	*				25,000	July.	1879	10													
Northern Belle, S	Nev.	1,600	5,000,000	50,000	100					1,775,000	Mar.	1881	50	13.50				14 63	13.50			12.50				420
North Belle Isle	Nev.	1,500	10,000,000	100,000	100	25,000	Feb.	1880	15	15,000	Sept.	1880	15													
Ontario, S	Uth.	3,000	10,000,000	100,000	100					3,250,000	Mar.	1881	50	35½				36¼	35¼							160
Ophir, G. S	Nev.	675	10,080,000	100,800	100	2,901,800	Nov.	1880	1 00	1,603,200	Jan.	1880	1 00	3.80		4.00										300
Ore Knob, C	N. C.	1,600 acs.	1,500,000	150,000	10	*				173,300	Sept.	1880	25													
Plumas, G	Cal.		1,000,000	100,000	10	715,000				151,000	July	1879	8	2.00												230
Raymond & Ely, G. S	Nev.	5,000	12,000,000	120,000	100	955,000	Aug.	1880	2 00	3,075,000	Sept.	1873	3 00													
Rising Sun	Cal		750,000	150,000	5	*				90,000	Feb	1881	15	2.90								3.05	2.90	3.05	2.90	3,200
Robinson Cons	Col.		10,000,000	200,000	50	*				175,000	Sept.	1880	50	7.75		8.00		8.00								600
Sierra Nevada, G. S	Nev.		10,000,000	100,000	100	4,450,000	Jan.	1881	1 00	102,000	Jan.	1871	1 00	6.13		3.05										80
Silver King, S	Ariz		10,000,000	100,000	100					575,000	Mar.	1881	25			26										200
Spring Valley	Cal.,	3,650	200,000	200,000	1	*				50,000	Jan.	1881	25	3.10	3.00			3.00	2.95							640
Standard, S	Cal.	1,500	10,000,000	100,000	100	50,000	July	1878	1 00	2,550,000	Mar.	1881	75			2.00	25¼	25½								675
Starr Grove, S	Nev.		2,000,000	200,000	10					80,000	Feb.	1881	10	5.00				5.00		6.00	5.13	6.00		5.95		700
Stormont, S	Uth.		150,000	150,000	1	*				135,000	Nov.	1880	30			22		2.13								2,100
Tombstone, S	Ariz		12,500,000	500,000	25	*				600,000	Mar.	1881	10	6.13	6.00											525
Yellow Jacket, G. S	Nev.	1,200	12,000,000	120,000	100	3,978,000	Oct.	1880	1 00	2,184,000	Aug.	1871	2 50													

Non-Dividend-Paying Mines.

Alta-Montana	Mon		5,000,000	500,000	10	*								2.25	2.20	2.25				2.15		2.10				2,200
Am. Flag, G	Col	5,300	1,250,000	125,000	10	*								28c	26c	28c	26c	28c	26c	27c	25c	31c	26c	31c	28c	15,100
Auburn & Rock Creek	Cal.		5,000,000	5,000,000	10	*																				
Bald Mountain	Colo		10,000,000	1,000,000	10	*								10c				9c				9c				1,300
Barcelona	Nev		5,000,000	200,000	25									1.25	1.20	1.20	1.05	1.20	1.05	1.15	1.05			1.10		10,100
Bechtel Con., G	Cal.		10,000,000	100,000	100	162,750	Dec.	1880	0 15							6 0c										300
Best & Belcher, G. S	Nev.	545	10,080,000	100,800	100	992,930	Dec.	1880	50																	
Big Pittsburg	Col.				100									3.40	2.25	4.45	3.75	4.05	3.85	3.80	3.50	4.00	3.65	3.80	3.25	21, 67
Black Jack	Col.		2,500,000	100,000	250									1.10	1.00	1.15	1.10	1.15								9,000
Bonanza Chief	Mon		1,000,000	1,000,000	1	*								31c	29c	31c	30c	31c	30c							5,700
Boston Con, G	Cal.		10,000,000	100,000	100									8 c	7 c	7 c		8 c	7 c	8 c	7 c	7 c	7 c	7 c	6 c	11,6 0
Boulder Con	Colo		2,000,000	200,000	10									8 c	7 c	9 c	8 c	8 c	7 c	7 c	7 c	8 c	7 c	7 c	7 c	46,5 0
Buckeye	Col.		2,000,000	100,000	5	*										21c	20c	21c	20c	20c	19c	21c	19c	19c		12,200
Bull-Domingo	Colo		10,000,000	200,000	50	*								3.25		3.20	2.40	2.65	2.50	2.65	2.35	2.75	2.25	2.35	2.20	11,003
Bullion, G. S	Nev.	943½	10,000,000	100,000	100	352,000	Dec.	1880	1 00																	
Bulwer, G	Cal.		10,000,000	100,000	100	30,000	Dec.	1877	50					2.00		1.95		2.05								55
Bye and Bye	Ariz		1,000,000	100,000	10	*								15c		15c		15c								2,900
Calaveras, G	Cal.	2,200 acrs	500,000	500,000	1	*								22c	21c	23c	22c	21c		21c		22c		21c	20c	26,850
Cal., B. H., G	Dak.		10,000,000	100,000	100	375,000	Oct.	1880	0 50					2.00	1.75					1.60				1.50		900
Carbonate Hill	Col.		2,000,000	200,000	10																					
Catskill	Nev.		1,500,000	300,000	5									6.00		6.00				6.13		6.13		6.25	6.13	1,075
Central Arizona, S	Ariz		10,000,000	100,000	100									5.25	5.00	5.01		5.13				5.03	4.88	5.13		1,200
Cherokee, G	Cal.		1,500,000	150,000	10									2.10	2.05	2.10	2.05	2.10	2.00	2.10		2.05	2.00	2.05		5,800
Colorado Central	Col.		3,000,000	300,000	10																					
Columbia Con., G. S	Nev		5,000,000	100,000	50																					
Cons. Imperial, G. S	Nev.	468	50,000,000	500,000	100	1,325,000	Jan.	1881	0 10					12c		12c		11c		12c		11c		14c		1,300
Con. Pacific, G	Cal.	1,400	6,000,000	60,000	100	90,000	July.	1880	0 50							8 0c				5c		72c		82c	70c	4,300
Crowell	N. C.		500,000	500,000	1	*																				1,000
Dahlonega, G	Ga.		250,000	250,000	1	*								8c	7c	8c		9c		8c		7c		8c	7c	12,2 0
Dunderberg	Colo		1,500,000	150,000	10	*																				
Durango	Dak.		500,000	500,000	1	*								16c	15c	16c	15c	18c	16c	16c	15c	15c		16c		13,10
Empire	Ut'h															90c		80c								8 0
Girard	Ariz																									
Glass Pendery	Col.				2											2.35		2.40	2.20	2 15	1.95	1.95				4,60
Glynn Dale Con. G	Cal.		10,000,000	100,000	100	75,000	Jan.	1881	0 25																	
Gold Placer, G	Col.		5,000,000	200,000	25																					
Goodshaw, G	Cal.		10,000,000	100,000	100	145,000	Feb.	1881	15					73c	70c	73c		74c	73c	73c		74c	73c	75c	71c	3,400
Granville, G	N. C	1,231 acs.	300,000	300,000	1	*								4c	3c	4c	3c	4c		4c		3c				35,700
Harshaw	Ariz		10,000,000	100,000	100																					
Hortense	Col.													61c	56c	63c	59c	65c	61c	65c	60c	65c	61c	70c	64c	41,600
Iron Silver	Colo		10,000,000	500,000	20	*												3.50		3.50		3.50				1,100
Lacrosse	Col.	3,900	1,000,000	100,000	10	*										27c		28c	27c	27c	26c	29c	26c	28c	27c	8,200
Legal Tender	Col.													2.85	2.75	2.95	2.80	3.00		3.25	3.15	3.40	3.30	3.75		4,900
Leviathan	Nev	2,000	10,000,000	100,000	100	325,000	July.	1880	15																	
Lucerne	Col.	4,200	5,000,000	500,000	10	*								10c		10c	9c	12c	11c	13c	12c	13c	11c	13c		20,300
Malachite	Nev				400																					
Mariposa preferred	Cal.	14,387	5,000,000	50,000	100	1,425,000	Dec.	1880						6.25				5.50		6.00						175
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	Dec.	1880						4.50		5.00	4.50	4.75	4.00			4.00		4.00	3.50	4,618
May Belle, G	Cal.	1,500	10,000,000	100,000	100	56,000	Dec	1880	0 10																	
Mayflower	Colo		1,000,000	100,000	100	*																25c		26c		100
Mexican, G. S	Nev.	600	10,080,000	100,800	100	1,488,200	Jan.	1881	0 50							4.13								4.25		150
Mineral Creek	Ariz		2,000,000	200,000	10	*								36c	30c	36c	32c	47c	35c	48c	41c	55c	45c	55c	50c	41,800
Miner Boy	Colo					*								1.60	1.5	1.60	1.45	1.60	1.55	1.65	1.55	1.60	1.55	1.60		36 300
Mono, G	Cal.,	750	5,000,000	50,000	100	275,000	Dec.	1880	50																	
Moose Silver	Colo			300,000																		1.65				200
North Standard, G	Cal.,													23c	22c	25c	23c	25c		23c	22c	23c				6,100
Quicksilver preferred	Cal.	8,500	4,251,300	42,913	100	*																69⅜		63¾	61	1,700
" common	Cal.	acres.	5,708,700	57,087	100	*												15		15				15¾	15	6 0
Rappahannock, G	Va.	345 acres	250,000	250,000	1	*								15c	14c	14c				14c				14c		4,400
Red Elephant	Colo		5,000,000	500,000	10	*								33c	32c	33c	29c	31c	29c	31c	30c	31c	30c	30c		13,400
Silver Cliff, S	Col.		10,000,000	200,000	50	*								5.50	5.13	5.25	5.13	5.13		5.13		5.60	4.90	5.00	4.75	3,050
Silver Nugget	Ariz		2,000,000	200,000	10	*								8c	7c	8c		8c	5c	9c	8c	10c	9c	10c	9c	23,750
South Bodie, G	Cal.	1,500	10,000,000	100,000	100	85,000	Nov.	1880	0 25																	
South Bulwer, G	Cal.	1,500	10,000,000	100,000	100	170,000	Dec.	1880	0 25																	
South Hite G. M. Co	Cal.		2,500,000	100,000	25	*								50c		5c				53c				4 c		100
Sutro Tunnel	Nev.		20,000,000	4,000,000	10	*								1.15	1.13	1.15	1.13	1.30	1.25	1.30	1.13			1.25		1,300
Tioga	Cal.	1,500	10,000,000	100,000	100	225,000	Nov.	1880	0 15									50c						50c		23,285
Tip-Top	Ariz	1,500	10,000,000	100,000	100	120,000	Mar.	1880																		400
Tuscarora, S	Nev.		10,000,000	100,000	100	80,000	Oct.	1880	0 15																	
Unadilla	Colo		500,000	500,000	1	*								2 c	20c	28c	20c	21c	20c	18c	17c	14c				5,700
Union Cons. G. S	Nev.	800	10,000,000	100,000	100	930,000	Nov.	1880	1 00					17c		15c						15c		15c		2,700
Vandewater	Nev		2,000,000	200,000	10	*								7.00												160
Willshire	Cal		50,000	50,000	1	*								46c	40c	41c		43c	41c	55c	43c	59c	53c	56	53c	11,200
																1.45		1.45		1.39		1.35		1.35		735

G. Gold. Silver. S. 1, Lead. C. Copper. *Non-Assessable. † The Deadwood mine paid in dividends, previous to the consolidation, $27 000. Total shares sold during the week, 1,048,719.

a constant improvement, though the best ore is found as depth is gained. The new machinery at hoisting-works is working well. The new shaft is now down over 100 feet and the first cross-drift has been started for the ledge that was cut by the shaft last November.

Green Mountain.—The superintendent reports the mine in flourishing condition. The bullion shipments for the last eighteen days of the mill's running time in February were between $13,000 and $14,000. This shows the best proportionate results for the time the mill has actually been able to work of any run since the new works have been completed—over $750 per day, with an improvement in the quality of the ore. The break in the ditch supplying water-power for the mill, causing loss of time, was owing to unprecedented severity of weather, the heavy fall of snow, and great rains, causing wash-outs. The No. 5 tunnel is still running through the main ore-body, the reserves of ores opened are immense, and the second upraise is now running to make connections with the main works in No. 4 tunnel. The mills are running full time.

Little Pittsburg.—A dispatch dated Leadville, Colo., March 11th says :

The east upraise in Little Pittsburg has been made to the wash and no ore has been found. The probabilities are, that the ore-body struck was only a pocket and isolated.

Lucerne.—A dispatch received yesterday states that there has been a decided improvement in the Lucerne within the past few days, about six inches of handsome galena having been uncovered in the drift running westerly from the bottom of the upper shaft. The mineral was struck yesterday morning in the breast of the drift, not more than ten feet from the shaft. It is large-grained, cubical galena, with a little copper and a trace of zinc, and is in two bodies, separated by about four inches of quartz. Judging from the character, formation, and pitch of the two bodies, it is likely that these will unite in a few yards, when there should be nearly a foot of solid mineral.

Miner Boy.—The manager of the Miner Boy mine telegraphs, under date of March 12th :

Will ship copper bullion daily, beginning at once. Mill running well. Can not treat all mill ore. Am shipping 2½ tons per day to Eddy & James, which runs $280 per ton.

Standard Consolidated. — The superintendent reports, under date of March 7th, that the east cross-cut, 1000 level, is in from the shaft 145 feet. The west cross-cut is in 95 feet in favorable porphyry rock. The total length of main east cross-cut, 700 level, is 545 feet, with face in hard blasting rock. The south drift from the east cross-cut, 500 level, is in 178 feet, showing the ledge in the face 3 feet wide. Upraise No. 6, 385 level, is up 145 feet ; the vein at this point is about 8 feet wide. Upraise No. 1 in the south drift, 385 level, is showing about 12 feet of ore. The vein in the 385 level, north drift, holds its usual width of from 12 to 20 feet of clean ore, and on the 550 level, the ledge in the stopes is about 20 feet wide.

DIVIDENDS.

The La Plata Mining and Smelting Company has declared its nineteenth dividend of $15,000, or 7½ cents per share on the capital stock, payable April 1st. Transfer-books close March 25th and reopen April 2d. Total amount of dividends declared to date, $195,000.

The Dunkin Mining Company has declared its regular monthly dividend (No. 13) of $15,000, or 7½ cents per share, payable April 1st. Transfer-books close March 23d and reopen April 2d. The output of the Dunkin mine, for the first fifteen days of March, was 470 tons.

The Starr-Grove Mining Company has declared its regular monthly dividend (No. 5) of 1. per cent, amounting to $20,000, or 10 cents per share, payable March 31st, to stockholders of record March 25th.

The Evening Star Mining Company has declared dividend No. 8, of 5 per cent of the capital stock, payable March 23d.

The Homestake Mining Company announces the regular monthly dividend of 30 cents per share for February, payable March 25th. This makes the 31st dividend, and the total to date aggregates $930,000.

The Gold Stripe Mining Company announces a dividend of 15c. per share, payable March 30th.

The Northern Belle Mining Company has declared a dividend of 50c. per share.

The Idaho (Grass Valley) Mining Company has declared a dividend of $7.50 per share.

The Navajo Mining Company has declared a dividend of 25c. per share.

The Eureka Consolidated Mining Company has declared a dividend of 50c. per share.

The Boston & Montana Gold Mining Company announces a dividend of 10c. per share.

The Catalpa Mining Company has declared a dividend of 20c. per share.

The trustees of the Green Mountain Gold Mining Company, at their meeting on Saturday last, declared the usual dividend of five cents per share, instead of one equal to that of last month, the mills having run only a trifle more than half-time during the month of February, on account of a break in the ditch, occasioned by the recent severe storms in California.

The Father de Smet Consolidated Gold Mining Company has declared dividend No. 10, of 25 cents per share, payable at the office of Laidlaw & Co., 14 Wall street, New York, April 1st, on all stock issued from the New York agency. Transfer-books will close on the 21st inst. and reopen on the 2d of April.

The Chrysolite mine has, it is understood, sufficient cash on hand to enable it to pay a 25 or 50 cent dividend without embarrassment ; but the managers have wisely decided to do nothing to weaken the financial ability of the company, nor to use methods of doubtful propriety for the purpose of bolstering their stock in the market.

The dividends paid by mines incorporated in San Francisco during the month of February were as follows :

Standard Con. Mining Co	$75,000
Western Mining Co	75,000
Deadwood-Terra Mining Co	50,000
Eureka Con. Mining Co	25,000
Father de Smet Mining Co	25,000
Homestake Mining Co	30,000
Idaho Mining Co	15,500
Indian Queen Mining Co	5,000
New York Hill Mining Co	10,000
Northern Belle Mining Co	25,000
Ontario Mining Co	50,0 0
Silver King Mining Co	25,060
Total	$574,500

SAN FRANCISCO MINING STOCK QUOTATIONS.
Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS. Mar'h 11.	Mar'h 12.	Mar'h 14.	Mar'h 15.	Mar'h 16.	Mar'h 17.	Opening. Mar'h 18.
Alpha	.....	.....	.....	2⅝	2½	2⅛	.....
Alta	1¾	1¾	1⅞	1¾	1⅞	1½	.....
Argenta	.....	.....	.....	.....	.....	.....	.....
Bechtel	.....	.....	19-32	9-16	9-16	.....	.....
Belcher	27-32	.....	.....	1	13-16	27-32	.....
Belle Isle	.....	.....	.....	.....	.....	.....	.....
Belvidere	.....	.....	.....	.....	1-16	.....	.....
Best & Bel.	6⅝	6⅝	6⅝	6⅞	6¼	6⅜	.....
Bodie	6⅞	6⅞	6¼	6	5⅝	6	.....
Bullion	9-16	9-16	½	⅛	7-16	13-32	.....
Bulwer	.....	.....	2	2	.....	.....	.....
California	15-16	29-32	.....	29-32	15-16	15-16	.....
Chollar	1⅛	1⅛	1⅛	1¾	1¾	1⅞	.....
Con. Imp	.....	.....	.....	.....	.....	.....	.....
Con.Pacific	.....	.....	.....	.....	.....	.....	.....
Con.Va	1⅝	1⅝	1⅝	1⅝	1⅝	1⅝	.....
Crown P'int	1	1	1	1⅛	1	1	.....
Eureka Con	.....	26	25⅝	25¾	25½	26	.....
Exchequer	15-16	.....	29-32	29-32	1	15-16	.....
Goodshaw	⅛	.....	9-16	9-16	.....	.....	.....
Gould &Cur	3¼	3¼	3¼	3¼	3¼	3¼	.....
Grand Prize	¾	15-16	27-32	13-16	13-16	.....	.....
Hale & Nor.	3⅛	3¼	3¼	3⅛	3¼	3⅛	.....
Mar. White.	3-16	.....	.....	.....	¼	.....	.....
Mexican	4¾	4	4¾	4⅞	4⅝	4½	.....
Mono	.....	1⅛	1¼	1	1¼	1	.....
North. Belle	13	.....	14	12½	12¾	13	.....
Noonday	.....	1⅞	1¾	1¾	1⅞	1¾	.....
Ophir	3¾	3⅞	3¾	3⅞	3¾	3⅞	.....
Orig. K'ys'e	.....	.....	.....	.....	.....	.....	.....
Oro	11-32	11-16	21-32	19-32	21-32	11-16	.....
Overman	19-32	19-32	19-32	11-16	19-32	19-32	.....
Potosi	2	2	2	2¼	2	2	.....
Savage	1⅛	1⅛	1⅛	1¼	1⅛	1⅛	.....
Scorpion	1⅛	1⅛	1⅛	1⅛	1⅛	1⅛	.....
Sierra Nev.	6	6¼	6⅜	6¾	6¼	6¼	.....
Silver King	21¼	21¾	23	23	22½	22½	.....
So. Bulwer	5-16	.....	.....	.....	.....	.....	.....
Tioga	.....	.....	.....	.....	.....	.....	.....
Tip Top	4¼	.....	4	4	.....	.....	.....
Tuscarora	11-32	11-32	5-16	.....	¼	¼	.....
Union Con	6⅞	7	6⅞	7⅛	6⅞	6⅝	.....
Utah	.....	.....	.....	.....	.....	.....	.....
Wales	.....	.....	15-16	29-32	31-32	15-16	.....
Yel. Jacket	2⅛	2½	2¼	2¾	2½	2⅜	.....

REVIEW OF THE SAN FRANCISCO MARKET.

The quotations of the regular dividend-payers in this list are fairly maintained, which is quite in contrast with the general tendency of the market. Indications point to an entire abandonment of many prominent Comstock mines. Some eighty stocks have already been stricken from the list for the non-payment of annual dues. The bonanza men are looking toward Arizona and Mexican properties, a number of which are being examined by practical experts.

The following dispatch is of interest in this connection.

SAN FRANCISCO, CAL., March 14.—There is a prospect that the San Francisco Stock Exchange building will be sold to the Western Union Telegraph Company for $400,000. The original cost was $700,000. Overtures to the members by the owners of the old building formerly occupied by the Board in California street, resulted in these inducements being offered.

SAN FRANCISCO, March 14.—There has been filed in the office of the County Recorder of Virginia City an agreement between the Overman, Belcher, Crown Point, and Segregated Belcher mining companies, on the Comstock lode, from which it appears that they will immediately sink the Forman shaft in four compartments, until it shall have attained a depth of at least 4250 feet, to be the joint property of the above four mines. The charges to each mine for hoisting any ore shall be from a depth of 2000 feet or less, 75 cents per ton ; from 2500 up to 2000 feet, $1 per ton ; from 3000 and below 2500, $1.25 per ton ; from 3500 and below 3000 feet, $1.50 per ton ; from 4000 and below 3500 feet, $1.75 per ton ; from below 4000 feet, $2 per ton. The agreement is signed by George W. Beaver, President of the Overman mine ; James Newland, President of the Belcher ; O. S Weller, President of the Crown Point ; R. F. Morrow, President of the Segregated Belcher ; and the respective secretaries of the several companies. Drifting toward the south lateral Sutro Tunnel was begun in the Forman shaft on the tunnel level, and is already in over 100 feet. The San Francisco *Bulletin* states that the miners have been taking out 100 tons of gold ore from the St. John lode near Sutro Tunnel shaft No. 3. This ore averages $18 per ton.

According to statements filed by the secretaries in San Francisco, the following companies had a balance on hand March 1st : Western (Contention), $153,386.58 in cash and $15,500 in bullion ; Standard Con., actual cash balance, $144,003.91 ; Northern Belle, actual cash balance, $172,627.37 ; Hale & Norcross, $27,126.58 ; Best & Belcher, $6343.63 ; Benton Con., above all liabilities, $30,023.78; Alta, above all liabilities, $19,604.93; Savage, $32,839; Con. Virginia, $49,565.65 in cash and $19,287.49 in bullion; California, $467 cash, $14,317.13 in bullion; (California Company is overdrawn $18,094.10 at bank) ; Ophir, $7935.93 in cash and $5173.92 in bullion ; Utah, $25,961.69 ; Mexican, $2228.16 ; Silver Hill, $11,574.91 ; Potosi, $28,312.06 ; Chollar, $34,797.43 ; Challenge, $6430.13 ; Imperial, $10,289.35 ; Crown Point, $700 ; Belding, $1272.90; Navajo, $10,219.50 ; North Belle Isle, $10,499.93 ; New York, $1019.40 ; Champion, $239.42 ; Exchequer, $7432.83 ; Overman, $7054.79 ; Julia Consolidated, $12,850.67. (The Julia Company has its note out for $25,000, balance due in payment for Ward shaft.) Bullion, $17,009.01. (The Bullion Company has an indebtedness of $248,299.16, including $235,000 due for Ward shaft.)

The following companies were in debt March 1st : Union Con., $65,453.61 (February expenses not included) ; Mount Diablo, $12,119.74 ; Betty O'Neal, $7311.77 ; Belle Isle, $7615.75 ; Argenta, $959.16 ; Independence, $8079.17 ; Grand Prize, $22,754.87 ; Belcher, $2180 ; Caledonia, $2477.08 ; Gould & Curry, $15,000, with $51,000 to be collected from last assessment ; Lady Washington, $7072.60 ; Equator, $6353.75 ; Metallic, $7597.49 ; Alpha Con., $10,873.68 : Caborca, $7729.59.

Copper and Silver Stocks.

Reported by C. H. Smith, 15 Congress street, Boston, Stock Broker and Member of the Boston Mining and Stock Exchanges.

BOSTON, March 17.

The feature of the market in copper stocks for the week under review is the decline in Calumet & Hecla to $235, and a subsequent rally to $247—the decline bringing out buyers, which advanced the stock. The balance of the market continues to rule dull at generally lower prices. Silver stocks have been fairly active without material change in quotations :

Copper Falls steady at $12¾@$13.
Franklin dull at $14@$14¼.
Pewabic declined to $17 on sales of less than 100 shares; later, the stock advanced to $18@$18¼, and closed in demand at $18¼ bid.
Quincy opened at $33½, declined to $32¾, but was stronger to-day at $33¼.
Osceola sold at $37.
Atlantic steady at $14@$14½.
Huron sold at $4½@$4⅝.
Allouez, $3¾.
Douglas, $3¼@$3½.
National, $1⅛.
Blue Hill, $4⅝.
Madison, $1.
Aztec, $1¼.
Brunswick Antimony sold at $18@$21, and was offered at the latter figure with $18 bid.
Breece Iron Mining Co., which was put on the board at $1¾, advanced to $1⅞.
In silver stocks, Catalpa opened at $2 1-16, but was in good demand and advanced to $2¼. About 5000 shares changed hands.
Contentment firm at $2⅝@$2⅞.
Harshaw dull but quite steady at $12@$13.
Silver Islet declined from $30@$29½.
Dunean Silver opened at $3⅝ and advanced to $4, closing $3⅞ bid.
Sullivan & Waukeag sold at $7.
3 P.M.—At the afternoon Board, there were no special features.
Blue Hill sold at $4¼.
Atlantic, $14¼.
National, $1½.
Quincy, $33½.
Breece advanced to $2.
Calumet & Hecla, $245 bid, $248 asked.
Franklin, $14 bid.
Copper Falls, $12¾ asked.
Pewabic, $18¼ bid; none offered.
Harshaw, $12@$13.

At the Boston Mining and Stock Exchange, the week has been a dull one, in sympathy with the general market. Prices, have, however, with few exceptions, been well sustained, and the volume of business quite as large as could be expected.

Boston Gold and Silver continues to be a favorite, and the price steady at $5 45@$5.53.

Massachusetts & New Mexico has been neglected, and declined to about 60c., which seems to be bottom figures.

Mendocino advanced from $2.66 to $2.75, with sales at $3, buyer, 30.

North Castine advanced from $2.87½ to $2.95, on moderate sales.

Dunkin has fluctuated with the New York market from $1.78 to $1.65. Sales at the latter figure this afternoon.

Empire Mining and Milling Company has lost its prestige for the present, owing to the absence of several of the largest operators. The stock ruled quite steady throughout the week at 89@91c. until to-day, when it broke to 75c., rallied to 78c., and closed 76c. bid.

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES. No.	SHARES. Par Val.	Last Dividend. Mo.	Y.	R't.	Rate per Ann.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share. Mar. 12. H.	L.	Mar. 14. H.	L.	Mar. 15. H.	L.	Mar. 16. H.	L.	Mar. 17. H.	L.	Mar. 18. H.	L.	SALES
	$		$				Per c'nt													
Am. Coal Co.	1,500,000	60,000	25	...	..	....	....	53¾	53	54	53¾	53⅞	52	53	51½	52⅝	51¾	52½	51¼	13,830
Col. C. & I. ..	10,000,000	100,000	10	.....	..	....	....	25	24	25¼	24¾	24¾	23¾	23¾	23⅜	24¼	23½	24⅜	.....	7,060
Ches. & O. RR	15,000,000	150,000	100	.....	..	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Consol. Coal.	10,250,000	102,500	100	Jan.	'77	2½	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cumb. C. & I.	500,000	5,000	100	.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & H. C. ..	20,000,000	200,000	100	Aug	'76	4	9	+	113⅛	114¼	113	113¾	112	112⅝	110¼	111⅛	110	112¼	110⅜	3,500
D., L. & W. RR	20 000,000	524,000	50	Jan.	81	1½	6	‡	129⅜	130	129⅜	129¾	126⅜	127¼	126¾	126¼	124¼	123¾	124⅜	328,014
Elk Lick C Co	.....	.....	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lehigh C. & N	19,448,550	208,971	50	Sept	'76	1¼	5½	46¾	.....	47⅛	46¾	47¼	46⅝	46⅞	46¼	46¾	46¼	.....	.....	12,192
Leh. V'y R. R	27,042,900	540,858	50	.....	..	....	4	62¼	62	62¾	62	62¾	62	62	.....	62	61⅝	.....	.....	2,491
Mary'd Coal	4,400,000	44,000	100	Jan.	'76	1½	1½	...	...	...	...	...	...	...	...	...	...	...	...	...
Montauk C'l.	2,500,000	25,000	100	.....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morris & Es'x	15,000,000	300 000	50	July	79	3½	7	122	.....	.....	.....	122	.....	121	.....	.....	.....	.....	.....	6 0
New Cen. C'l	5,000,000	50,000	100	Dec.	80	2	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80	.....	100
N. J. C. RR. .	20,000,000	200,000	100	Apr	76	2½	2½	§	104	107¼	104¼	107⅛	105	106¼	104¼	106	104⅜	106	105	88,116
Penn. Coal...	5,000,000	100,000	50	Oct.	79	3	....	§	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Penn. R. R..	68,870,200	1,337,404	50	Nov.	80	3	....	65⅝	65⅛	66¾	65½	66⅛	66	66¼	65⅞	66⅛	65¾	.....	.....	48,970
Ph. & R. RR*.	34,278,150	685,563	50	Jan	76	2¼	10	68½	65	66½	65½	67	64½	65½	63¾	65¼	64	64½	64¼	48,783
Spring Mt.C'l	1,500,000	30,000	50	Dec.	79	3¾	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Of the sales of this stock, 28,583 shares were sold at the Philadelphia Stock Exchange, and 20,200 shares at the New York Stock Exchange.

+ 114¼. ‡ 130¼. § 105¼. ‖ 241½. Total Sales..... 581,459.

BOSTON MINING STOCKS.

NAME OF COMPANY.	Shares.	Par.	Mar. 11. H.	L.	Mar. 12. H.	L.	Mar. 14. H.	L.	Mar. 15. H.	L.	Mar. 16. H.	L.	Mar. 17. H.	L.	SALES. Shares
Allouez, c.....	Mich.	80,000	$25	.....	.....	.....	.....	.....	.....	.....	3¾	.....	+	3¾	3¾	.....	500
Atlantic, c.....	Me...	40,000	25	.....	.....	14½	.....	14	.....	14	.....	.....	14¼	.....	14¼	.....	192
Arizona Queen..	Ariz..	.....	....	1.30	.....	1.31	.....	1.30	.....	.....	.....	1.30	.....	1.31	.....	.....	750
Atrata.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aztec.....	Mich.	.....	....	.....	.....	1.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
Adrie Con. g. s..	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona & Mass.	Ariz..	....	....	.....	.....	.....	.....	.....	.....	1.00	.....	1.00	.....	.....	.....	.....	1,000
Acton Con.....	Me...	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bald Mountain	Colo..	.....	....	.11	.10	.....	.....	.10	.09	.10	.09½	.09	.....	.....	.....	.....	4,500
Bonanza Chief..	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston& Eureka	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Blue Hill, c.....	Me...	50,000	....	.....	.....	.....	.....	.....	.....	.....	.....	4⅝	.....	4¾	.....	.....	175
Brunswick.....	Me...	.....	....	.....	.....	18	.....	19	18½	21	.....	.....	.....	.....	.....	.....	210
Breece	.....	.....	....	.....	.....	1.80	.....	1.88	.....	.....	.....	.....	.....	2.00	.....	.....	1,000
Boston, g. and s.	Colo,.	.....	25	5.48	5.45	5.50	5.47	5.48	5.47½	5.52	5.48	5.52½	5.50	5.53	5.50	.....	5,325
Cal. & Hecla, c..	Mich.	100,000	10	.....	.....	237	235	243	235	246	243	247	.....	246	.....	.....	174
Catalpa..... ...	Colo..	300,000	25	2 06¼	2 1-16	2⅛	2 1-16	2⅛	...	2¼	2⅛	2.25	2 7-32	2¼	.....	.....	5,190
Central, c.....	Mich.	20,000	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper Falls, c.	Mich.	20,000	....	12¾	.....	13	.....	.....	.....	12¾	.....	.....	.....	.....	.....	.....	175
Copper Harbor..	Mich.	.....	....	.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	700
Contentment...	Ariz..	.....	....	.....	.....	.....	.....	2¾	2⅝	2¾	.....	2¾	.....	2⅞	.....	.....	1,425
Crescent..... ...	Mex..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Crystal Mica.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dana, c.....	Mich.	20,000	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Duncan, s.	Ont..	60,000	25	.....	.....	3¾	3⅝	4	3⅞	4	*	4	.....	*	.....	1,825
Deer Isle.....	Me...	.....	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dunkin.....	Colo..	.....	....	1.85	1.75	1.75	1 72½	1.85	1.70	1.70	1.68	1.67	.....	1.67	1.65	6,950
Douglass.....	Me...	.....	....	3 25	.....	3.50	3.25	.....	.....	.....	.....	3.50	.....	.....	.....	550
Empire.....	Ariz..	.....	....	.90	.89	.90	...	1.00	.90	.90	.89	.90	.88	.85	.75	7,960
Eureka Tunnel..	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Franklin, c.....	Mich.	20,000	....	.....	.....	14	.....	14½	.....	.....	.....	14	.....	14¼	.....	.....	260
Gold Hill..... ...	Colo..	.....	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granger, c.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gregory.....	Colo..	... ..	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..
Golden Circle..	Colo..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gold Stripe. ...	Cal..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hanover.....	Mich.	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Harshaw.....	Ariz..	100,000	100	.....	.....	12¼	12	.....	.....	13	.....	.....	.....	13	.....	.....	455
Hibernia.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.65	.....	.80	.....	.....	600
Humboldt, c....	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hungarian, c...	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Huron..... ...	Mich.	.....	....	.....	4¾	.....	.....	4⅝	.....	4½	.....	.....	.....	.....	.....	.....	175
Hercules..... ...	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haverly G. Grp..	Colo..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Horn-Silver, s. .	Utah.	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
International, s.	Ont..	60,000	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Maine Mica.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Madison.....	Mich.	... ...	....	.....	.....	.....	.....	.....	.....	1.00	.....	.....	.....	.....	.....	.....	75
Mendocino.....	Cal..	.....	....	2.67	2.66	2.71	2.68	2.73	2.72	3.00	2.75	3.00	2.75	2.75	.....	3,400
Mexican..... ...	Nev..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Milton.....	Me...	.....	....	.....	.....	1.16	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.....	700
Mesnard, c.....	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Minnesota, c....	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mass. & N. Mex.	N. M.	.....	....	.75	.67	.67	.....	.66	.65	.63	.60	.62	.60	.68	.59	4,750
Magnolia.....	S. C.	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mex. D. D..	N. M.	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
National, c.....	Mich.	20,000	25	.....	.....	1.75	.....	.....	.....	.....	.....	.....	.....	1.50	.....	.....	300
North Castine...	Me...	.....	....	2.90	2 87½	2.90	2 87½	2 92½	2.90	2 92½	.....	2.95	2 92½	2 97½	2.95	2,750
N.E. Wat'r Meter	.....	.....	....	.....	4½	.....	.....	4¾	.....	.....	.....	.....	.....	.....	.....	.....	80
Orford, NICKEL..	Can..	50,000	20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Osceola, c.....	Mich.	40,000	25	.....	.....	37	.....	37	.....	.....	.....	.....	.....	.....	.....	.....	13
Panther Con....	.....	.....	....	.....	.....	.72	.70	.75	.65	.70	.66	.....	.....	.55	.50	8,400
Pewabic, c.....	Mich.	20,000	25	17	... ..	17	.....	.....	.....	18	.....	.....	.....	18½	.....	290
Phœnix, c	Mich.	20,000	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pine Tree.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Promontory Con	Colo..	.....	.....	7 12½	7.00	7.00	.....	7.00	.....	.....	.....	7.00	.....	7.25	.....	1.000
Quincy, c.....	Mich.	.....	.....	33½	...	33	.....	33	.....	.....	.....	33	32¾	33½	.....	719
Ridge, c.....	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rudisill.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Revere.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rockland, c.....	Mich.	20,000	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Salem Sullivan..	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Pedro.....	N. M.	.....	....	4.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.25	.....	.....	300
Simpson Gold ..	N.C..	.....	....	.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300
Sycamore.....	Ariz..	.....	....	1.80	1.60	1 62½	.....	1.66	1 62½	1.70	1.65	1.90	1 72½	1.70	.....	3,200
Star Coal.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Star Coal, 8 p. c.	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
So. Hite, c.....	Cal..	100,000	25	.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Clair.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Swan's Isle.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Silver Islet, s...	Mich	40,000	25	.....	.....	30	29½	29¾	.....	29½	.....	.....	.....	.....	.....	.....	195
South Noonday.	Cal..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Star.	Nev..	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stewart.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Superior, c.....	Mich.	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sutro Tunnel....	Nev..	*	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sul'v'n & Wa'k'g	Me...	.....	....	7.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
South Side.....	... ..	.....	....	.30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	700
Tecumseh.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuolumne.....	Cal ..	.....	....	1.22	.....	1.23	.....	1.22	.....	1.23	.....	.....	.....	1.23	.....	.....	900
Twin Lead.....	Me...	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Washington.....	Mich.	.....	....	.65	.. ..	.....	.....	.....	.....	.60	.....	.....	.....	.....	.....	.....	200
Young Hecla...	.....	.....	....	.....	.....	.50	.....	.50	.....	.....	.....	.....	.....	.....	.....	.....	300

*3 15-16 †3 13-16 c. Copper. s. Silver.

Gas Stocks.

NEW YORK, Friday Evening, March 18.

These stocks are weak and considerably lower. There were sales yesterday at the American Mining Board of 200 shares of Mutual at $69, and 300 shares of Brooklyn Metropolitan at $57¼@$57.

The following list of companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 19 Broad street, New York. Quotations are based on the equivalent of $100.

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATI'NS Bid.	Ask'd.
	$		P. ct.				
Mutual, N. Y....	5,000,000	$100	6	1½	Jan., '81	65	70
" Bonds...	900,000	1,000	6	3½	Aug. '80	100	105
N. York "	4,000,000	.....	8	4	Nov., '80	98	99
Metrop. "	2,500,000	100	10	6	Feb., '81	138	143
" Certfs...	1,000,000	.....	7	3½	Feb., '81	100	105
Harlem "	1,800,000	50	.....	3	Feb., '81	67	70
Manhat. "	4,000,000	50	.....	5	Feb., '81	180	185
Brooklyn, Bkln.	2,000,000	50	.....	5	Nov., '80	113	115
Nassau	1,000,000	25	.....	2½	Jan., '80	50	55
" Certfs...	700,000	1,000	7	3½	Nov., '80	90	95
People's.....	1,000,000	10	.....	3½	Jan., '78	25	28
" 1st m. Bonds	40,000	.....	7	3½	Nov., '80	101	104
" Bonds...	100,000	.....	6	3	Jan., '81	75	80
Metrop. "	1,000,000	100	5	2½	Jan., '81	55	60
W'msb'g "	1,000,000	50	.....	2	Jan., '81	60	65
" Bonds*..	1,000,000	1,000	6	3	Oct., '80	101	104
Citizens'.....	1,200,000	20	....	2½	Aug., '80	45	50
" Bonds..	315,000	1,000	.....	3½	Oct., '80	100	105
J. C., N. J.....	750,000	20	.....	7½	Jan., '81	150	155
Municipal, N.Y.	2,000,000	100	.....	5	Jan , '81	156	159½
" Bonds..	750,000	100	7	3½	Nov. '80	105	110
Fu't'n M'nicipal.	1,500,000	100	.....	...	.....	.....	55

Coal Stocks.

NEW YORK, Friday Evening, March 18.

The most noticeable feature in these stocks during the past week has been their extreme weakness, occasioned by unfavorable reports of the condition of the coal trade, and rumors that the companies would be obliged to lower prices. On the announcement that the companies would suspend mining for the last three days of each of the coming two weeks, there was a partial recovery; but though prices to-day have ruled considerably higher, the market is still far from being a favorable one. As usual, Delaware, Lackawanna & Western has absorbed the greater part of dealings, the sales of this stock alone amounting to 328,014 shares at $130¼@$124¼@$126¾. Delaware & Hudson has been dealt in to the extent of 30,500 shares at $114¼@$110@$112½. New Jersey Central has been active, the sales amounting to 88,116 shares at $107¼@$104¼. The dealings in Reading, in this market, have been light, the sales amounting to but 20,200 shares at $68½@$63¾. The sales of the stocks of the various Coal companies have been light, and include 200 shares of Pennsylvania Coal at $241½, 100 shares of New Central Coal at $30, and 13,830 shares of Colorado Coal and Iron at $54@51¼.

On Wednesday, the 16th inst., several of the leading Philadelphia coal stocks were called for the first time at the American Mining Exchange, and sales were recorded of 800 shares of Pennsylvania RR. at $66¼@$66; 25 shares of Lehigh Valley at $62; 200 shares of Lehigh Coal and Navigation at $46¾; and 30 shares of Lehigh & Wilkes-Barre Coal Company at $48¼@$48½.

On Monday last, in pursuance of an order of the Court of Common Pleas, the meeting of the Philadelphia & Reading Railroad Company was convened in Philadelphia. Previous to the meeting, Mr. Gowen forwarded to Mr. George M. Dallas, the gentleman appointed by the court to be chairman of the meeting, the following letter:

MARCH 14, 1881.—George M. Dallas, Esq., Master and Chairman appointed by Court of Common Pleas No. 2 of Philadelphia County of meeting of stockholders of the Philadelphia & Reading Railroad Company: Dear Sir: I have in my possession up to this morning proxies of 19 8 shareholders, representing 372,853 shares of the Philadelphia & Reading Railroad Company, constituting a clear majority of all the *bona-fide* stockholders of said company. As no decision has been announced by the court upon the question of the effect of the new registry, and fearing that it may possibly be determined that new registry for three months of a large number of shares represented by me might enable a minority of the shareholders to elect a ticket opposed to the wishes and policy of a very large majority, I have determined to run no risk of such result, and therefore, will abstain from attending the meeting at which you have been called upon to preside, believing that in this way I can, in a perfectly proper and legal manner, give effect to the real wishes of a very large majority of the shareholders of the company.

I am, my dear sir, very respectfully, your obedient servant, (Signed) FRANKLIN B. GOWEN.

About 273,000 shares were registered at the meeting, none of Mr. Gowen's friends being present. As soon as the registration was completed, voting for officers was commenced. The opposition ticket was headed by the following names: For President, Frank S.

Bond; for Treasurer, Samuel Bradford; for Secretary, Edgar L. Kinsley. The tellers will report the result of the election to the master, who will in turn report to the court.

BULLION MARKET.

NEW YORK, Friday Evening, March 18.

The market has continued stagnant and dull throughout the past week abroad and here, and with low sterling exchange here to make it all the more nominal in this market.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
March 12..	52⅛	112¼	Mar. 16.	52⅛	112¼
March 14..	52⅛	113⅛	Mar. 17.	52	112
March 15..	52⅛	112¾	Mar. 18.	52	112⅛

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments. These are officially obtained from the companies, where that is possible; and where official statements can not be procured, we take the latest shipments published in those papers nearest to the mines reported. The table gives the amount shipped for the week up to the date given, as well as the aggregate shipments to such date, from the first of January, 1881.

The shipments of silver bullion are valued at $1.29·29 per ounce, Troy; gold at the standard $20.67 per ounce, Troy. The actual value of the silver in the following table is therefore subject to a discount, depending on the market price of silver. The price of silver being now about $1.12 per ounce, the following figures, where they relate to silver bullion, should be diminished by about 13½ per cent to arrive at actual value:

		For the week.	Month of March.	Year from Jan. 1st, 1881.
Alice	Mont...	.....	.....	$68,338
Barbee & Walker	Utah..	$8,277	$12,610	71,115
Belmont	Mont..	.....	.....	15,270
Bodie	Cal....	6,700	6,700	77,809
Bodie Dis. Banks, etc.	"	.....	.....	19,138
Bos. & Colo. S. W'ks.	Colo....	.....	.....	253,000
California	Nev....	.....	.....	33,836
Christy	Utah...	12,784	21,029	101,899
Concordia	Cal....	.....	.....	2,234
Connor	"	2,800	10,070	28,375
Con. Virginia	Nev....	6,400	6,400	85,000
Contention	Ariz....	26,550	53,110	348,120
Crismon-Mammoth	Utah...	.....	.....	12,454
Custer	Idaho..	.....	.....	1,850
Derbic	Cal....	.....	5,400	37,292
Dexter Mill	Mont...	.....	.....	11,000
Elkhorn Mill	"	.....	.....	5,000
Eureka Con	Nev....	32,220	65,420	305,093
Exchange Silver	"	.....	.....	44,400
Fresno Enterprise	Cal....	.....	.....	9,600
Frisco M. and S. Co.	Utah...	.....	.....	46,086
Germania	"	8,030	27,650	140,915
Grand Central Mill	Ariz..	.....	10,000	10,000
Grand Prize	Nev....	.....	6,000	62,335
Hale & Norcross	"	.....	.....	33,090
Head Center	Ariz..	.....	9,820	9,820
Hermosa Mill	"	.....	.....	12,000
Horn-Silver	Utah...	15,000	34,069	183,572
Idaho	Cal....	.....	.....	51,000
Independence	Nev....	.....	14,000	14,000
Indian Queen	"	.....	.....	26,156
Iron Silver	Colo....	.....	.....	171,717
Jocuista	Mex....	.....	.....	82,000
Lexington	Mont...	.....	.....	7,000
Little Chief	Colo....	.....	.....	63,314
Mingo	Utah..	.....	.....	4,554
Morgan	"	.....	.....	24,179
Morning Star	Colo....	.....	.....	15,200
Mount Potosi	Nev	.....	12,380	32,180
Navajo	"	.....	6,000	28,000
Nevada silver ore	"	.....	3,000	3,000
Noonday	Cal....	4,120	17,420	74,133
Northern Belle	Nev....	22,800	47,500	250,460
Oneida	"	.....	.....	8,684
Ontario	Utah ..	47,886	78,151	432,106
Ophir	Nev....	.....	.....	5,170
Pascoe	Utah...	.....	.....	1,650
Richmond	Nev....	24,591	45,333	313,878
Sierra Nevada	"	.....	.....	16,775
Silver Bow	Mont..	.....	.....	51,342
Silver King	Ariz....	.....	.....	124,708
Standard	Cal....	44,179	105,593	532,081
Star	Nev....	.....	.....	28,413
Stormont	Utah...	.....	.....	77,249
Syndicate	Cal....	.....	.....	21,273
Tintic M. and M. Co.	Utah...	.....	10,277	34,269
Tip Top	Ariz....	.....	.....	109,900
Tombstone M. & M. Co	"	.....	.....	132,190
Union Con	Nev....	.....	.....	43,100
Wood River	Idaho..	.....	.....	6,450

ARIZONA.

Copper Queen.—This company shipped, between September 1st, 1880, and February 23d, 1881, 975 tons of copper bullion, 92 fine, having a value of $330,000.

Grand Central.—It is reported that this mine has from 6000 to 7000 tons of ore on the dump that will mill from $60 to $70 a ton.

Silver King.—The San Francisco *Bulletin* of March 4th publishes the report for 1880 of the Silver King Mining Company, showing its receipts as follows:

Sales of concentrations	$437,174
Sales of ores	37,073
Sales of bullion	31,394
Rebates on railroad freights	4,283

CALIFORNIA.

Standard.—The superintendent reports that, during the week ending March 17th, 1245 tons of ore were shipped to the mill; average pulp-assay, $45.44. Shipments to San Francisco amount to $44,179.38.

For the week ending March 9th, the Tuscarora *Times Review* reports the average pulp-assay of the following mines as follows:

Belle Isle	$157.64
Grand Prize	105.27
Navajo	123.60

Green Mountain.—The superintendent reports that the bullion shipments for the last eighteen days of the mill's running time in February were between $13,000 and $14,000.

COLORADO.

Little Chief.—The managers report that, for the week ending March 12th, 33 tons of ore were shipped, and 30 tons on the dump.

Miner Boy.—The superintendent reports that, for the week ending March 12th, 223 pounds of bullion were shipped, and a gold bar weighing 320 ounces, the product of 24 tons.

From the Leadville *Circular* we take the following table of the bullion produced by the smelters during the month of February, 1880:

SMELTERS.	Tons of bullion	Assay per ton.	Total oz. silver.	Total am't of silver and lead.	Tons of bullion on hand.
Grant S. Co....	556·0	280	155,680·0	$229,072.00	36·0
Billing & Eilers.	642·0	233	149,586·0	230,558.25	56·0
La Plata	501·0	208	122,928·0	195,621.00	.....
California	203·8	150	44,470·0	*78,077.35	.....
Cumming & F..	162·0	930	37,360·0	*57,631.50	21·0
American	178·3	218	38,860·4	61,023.10	548·3
Totals	2,423·1	....	548,393·4	$851,983.20	661·3

*Estimated.

Average price for silver during the month of February, $1.12⅛ per ounce; average price of lead during the month of February, $97 per ton.

Boston & Breckenridge.—It is stated that this smelter is turning out almost 20 tons of bullion weekly.

Bull-Domingo.—Recent reports state that this mine sends 400 tons of ore to its concentrating mill every week, which is dressed down to 160 tons of concentrates. About 400 tons of the latter are now awaiting shipment.

George Milo.—It is said that the average yield of last month was 57 ounces of silver per ton of ore, and the lead ore carri s 53 per cent of lead.

The Leadville *Circular* of March 12th gives the following table of the approximate daily output of the leading mines of the camp at the present time:

Mines.	Tons.	Mines.	Tons.
Miner Boy..	12	Carbonate Hill	3
Florence	8	Henriette	30
Little Sliver	12	Evening Star..	65
Colorado Prince	0	Dunkin	15
Little Pittsburg	25	Robert E. Lee	45
Chrysolite	50	Silver Wave	20
Little Chief	20	Little Giant	5
Iron Mine	250	Crescent & Etna	10
Silver Cord	20	Highland Chief	25
Catalpa	15	Comstock	5
Fryer Hill	0	Matchless	30
Amie	0	Hibernia	5
Oro La Plata	60	Climax	—
Glass-Pendery	12	Great Hopes	0
Morning Star	30	Dyer	6
Columbia	5	Others, say altogether..	30
Argentine	15	Etna	10
Virginius	0	Agassiz	5
Half-Way House	20		
Robert Emmet	5	Total, tons	868

DAKOTA.

Caledonia.—The manager reports that for the week ending March 5th, 1322 tons of ore were shipped to the mills; the bullion receipts amounting to 463½ ounces, valued at $7532.

MONTANA.

Butte.—The shipment of bullion through the express office at Butte for the week ending Saturday, March 5th, footed up 2385 pounds, valued at $38,160.

NORTH CAROLINA.

Bullion.—Recent reports from this mine (Rowan County) state that a ten-stamp mill is being erected, with necessary amalgamating machinery. A tunnel is driving on the vein, which shows a width of from one to three feet of from $15 to $20 ore.

UTAH.

Rebellion.—Reports state that this mine is producing 50 tons of smelting ore daily, valued at $80 per ton.

Silver Reef.—The bullion shipments from Silver Reef, through Wells, Fargo & Co., from February 24th to March 2d, inclusive, aggregated $12,592.38.

MISCELLANEOUS.

Bullion Receipts from the Mines to New York.—The bullion received from the mines at the various offices in this city during the week ending with yesterday, as compiled from various sources, amounts to $398,083.29, as against $565,781.40, reported in our last.

Exports of Gold and Silver from New York.

Week ending March 12th	$361,024.00
Corresponding week last year	221,220.00
Since Jan. 1st this year	2,448,061.00
Corresponding period last year	2,605,954.00

Gold Interest Paid Out by the Treasury.

Week ending March 12th	$448,699.51
Corresponding week last year	494,226.76
Since Jan. 1st this year	11,270,270.96
Corresponding period last year	13,687,575.55

WASHINGTON, March 15.—Treasurer Gilfillan has ordered 150,000 standard silver dollars to be delivered from the Mint in Philadelphia to banks in that city. It is presumed at the Treasury Department that the money is required for the payment of leases falling due in Philadelphia on April 1st, which are required to be paid in silver dollars.

WASHINGTON, March 17.—The Treasury Department to-day purchased 135,000 ounces of fine silver for delivery at the New Orleans Mint.

In order to conform the charges of the Mints and Assay Offices of the United States to the provisions of a recent act of Congress, Director Burchard has modified the previous regulations of the department so that the melting charges will hereafter be as follows: On bullion (or coin) not required to be parted or refined, for each melt of 500 ounces or less, 50 cents; over 500 ounces, one tenth of 1 cent per ounce.

The Gold Flood.—LONDON, March 13.—The steamer Wyoming, which sailed from Liverpool yesterday for New York, took out the sum of $500,000 in specie.

The amount of bullion withdrawn from the Bank of England on the 14th inst. was £274,000. It was all for shipment to this country.

The amount of bullion that went into the Bank of England yesterday was £16,000, and the amount withdrawn, £75,000. The entire withdrawal was for shipment to this country.

Gold to the value of $1,500,000 is on the way here from Europe to one of the Canadian bank agencies.

The steamship City of Berlin, which arrived at this city from Europe yesterday, brought $600,000 in gold bars.

The weekly statement of the Bank of France shows an increase in gold of 20,375,000 francs, and in silver of 12,500,000 francs.

METALS.

NEW YORK, Friday Evening, March 18.

We have no improvement to note in the general metal market; there is an utter void of speculation, and although the usual jobbing trade is fairly good, purchases are for the most part made from hand to mouth.

Copper.—For this metal there is little or no demand, and it will be noticed by our Boston stock report that the copper stocks sympathize with the flatness of the metal they represent. We quote Lake flat at 19c. Business has been done at this figure, and further lots are obtainable at the same price.

Our English advices by mail include March 4th.

Feb. 28th. On 26th inst., a more cheerful tone prevailed, and £61¼ full terms was refused for g. o. bs. To-day, Chili charters were advised, some cables giving 400 tons, some 500 tons, Bars and Ingots for England. In spite of moderate quantity, ordinary brands changed hands at £61, partly net money.

Charters.	1881. Tons.	1880. Tons.	1879. Tons.	1878. Tons.
January and February	5,223	10,713	7,634	8,558
February only	1,500	4,760	3,430	4,378

Since May 1st, charters have averaged only 2741¼ tons per month, equal to 32,902 tons per annum, a serious decrease in Chilian production unless stocks on the West Coast are heavy. Opinions differ as to which is the true cause of the diminution in shipments.

March 1st. Messrs. Richardson & Co., of Swansea, in their monthly circular, under date of March 1st, give the total stocks of Chili and other produce unsold there then as follows: Ore, 6365 tons; Regulus, 2367 tons; Copper, 12,343 tons, representing about 13,250 tons fine copper. On the 15th ultimo, by public ticketing, 1140 tons of copper ore, averaging for the whole sale 9 per cent, realized 12s. 4d. per unit. The more important private sales were: On February 2d, 100 tons Chili Regulus realized 12s. 9d. per unit; February 11th, 600 tons Cape ore, 12s. 7½d. February 15th, 640 tons New Quebrada ore, 12s. 6d; and on February 17th, 880 tons low produce New Quebrada realized 12s. 4d. per unit.

Messrs. James Lewis & Sons, under date of Liverpool, March 1st, say: The market for Chili bars remained steady, with transactions at £61 15s. @ £62 for g. o. bs. spot, until 22d ultimo, when, in absence of demand, it receded to £61 spot, and £62 for arrivals. Arrivals during month, at Liverpool and Swansea, from Chili, 3249 tons; deliveries, 1754 tons; from other countries, 2317 tons and 1677 tons respectively.

Not much business was reported to-day. G. o. bs. sold at £61 cash.

March 2d. With pressed sales, Chili Bars changed hands at £60½ and £60¾ cash.

March 3d. Fair business took place in Bars at £60⅝ and £60¼ cash; closing values, g. o. bs. being £60¾@£61, with takers at lower price on customary conditions.

March 4th. A steady market, and sellers of Bars rather scarce; buyers, however, mostly limited their orders to certain named brands, and for these they were willing to pay full prices. A small quantity of g. o. bs. sold at £60⅝, with some Lota at £60¾, and £61 was refused for a favorite mark. Wallaroo remains at £72, Burra Cake £67½, but no business doing. English rather wide in price. Tough Cake, £64 @ £66; Select Ingots, £66@£68; India Sheets, £69@£71; Yellow Metal, 5¾@6d. ₱ lb.

Tin.—In this article, a business of from 150 to 200 tons was done yesterday, at from 19¾@20c., and these prices are still obtainable; for jobbing lots

20⅛c. is asked. We quote Straits, 19¾@20c.; Billiton, 20⅛c.; L. and F., 20c.; Australian, 20¼c.

By cable, shipments for first half of month from Penang and Singapore were: 200 tons for United States, and 250 tons for Great Britain.

London quotes to-day £89@£89 10s for futures. Singapore, to-day, quotes $27⅝, with exchange 3s. 9⅝d., a parity of 20¾c. laid down here. The market closes strong.

Our English advices by mail include March 4th.

Feb. 28th. Dutch deliveries for February were 602 tons Banca and Billiton. London deliveries of fine Foreign for same period are estimated about 1400 tons, and stock this day about 7988 tons. Imports here were about 2345 tons, of which some 50 tons were for transhipment for America.

Values improved quite 1s. 6d. per cwt. since Saturday, when sales were made up to 87¼s. sharp cash. To-day, business was done to 87⅜s. sharp, 88¼s. ordinary cash terms, closing sellers 88s. cash. In Banca and Billiton, about 2500 slabs changed hands, the former from 87@88s. cash, the latter from 86¼@87½s. cash; 88s. end May.

March 1st. Moderate sales; cash parcels went at 87¾s. sharp payment, 14 days at 88s.

March 2d. Quiet; few transactions at 87¾s. and 87⅝s. short and sharp cash.

March 3d. Opened small sales, 87⅝s. being paid for sharp cash, 87½s. usual 14 days. Quotations gave way, and 86¾s. was finally accepted for cash. In Banca, there were sales 300 slabs at 87s., and in Billiton 600 slabs at 86½s., both for prompt settlement.

Messrs. Vivian, Younger & Bond, under date of London, March 3d, say:

Prices have fluctuated during the month considerably, from £90 10s. to £86 10s., this being the lowest cash price accepted here; £87 10s. is the closing quotation. The Australian shipments for February are advised by cable as 550 tons, and from the Straits 225 tons to London. The London deliveries were 1361 tons, and in Holland 609 tons. The heavy arrivals in February have caused an increase in stock; but it is fully expected that shipments from the Straits, and especially from Australia, will be much lighter during the next few months, while America should soon become a purchaser on an extensive scale, the visible supply to that quarter having been reduced to about four months' consumption, as against about eight months' consumption at the same time last year.

March 4th. Values have improved; on early 'Change, a few lots changed hands at 86½@86¾s. cash, 87@87½s. forward deliveries; but a brisk demand then set in, and a fair trade was done up to 87¼ cash, while for three months prompt 87⅜s. was refused. Transactions amounted to nearly 200 tons, and there were buyers of cash stuff at the close at 87s. In Banca, 500 slabs changed hands at 87s., and 300 at 87⅜s. cash. For Billiton, 86½s. cash; 87¼s., delivery end of May, refused.

Tin Plates.—There is a fair jobbing business considering the season, and a scarcity in standard brands makes prices for such higher in consequence. We quote per box as follows: Charcoal tins, Melyn grade, ¼ cross, $6¼@$6¼; Allaway grade, $5. Charcoal Roofing, Dean grade, $5⅝ for 14 × 20, and $11¼@$12 for 20 × 28; Allaway grade, $5@$5¼ for 14 × 20, and $10⅜@$10¼ for 20 × 28. Coke Roofing, B. V. grade, $4¼ for 14 × 20, and $9¾ for 20 × 28. Coke tins, A. B. grade, IC, $5¼@$5½; B. V. grade, $4.90@$5; ICW, $4.40@$4.50 for 14 × 20.

Messrs. Robert Crooks & Co., of Liverpool, under date of March 3d, say of tin and terne plates:

Although the improvement noted at the beginning of February has not been maintained, the situation, we venture to think, rather healthier than it was. Production, from one cause and another, has been largely diminished, considerable reduction has been made in stocks, while demand is quite fair for prompt, and still better for forward shipment.

According to the Board of Trade returns, the exports of tin plates during the first month of the following years were:

	1881. Tons. 16,600	1880. Tons. 19,700	1879. Tons. 12,600
Quotations.....	March 1st. Per box.	March 1st. Per box.	March 1st. Per box.
Best charcoal, IC..	19 s. 6d.	32 s.	20s. 6d.
Common Coke, IC.	15 s. 6d	28 s.	17s.

Pig Lead.—Sales have been effected at from 4·80c down to 4·75c, with moderate business for the week, aggregating about 500 tons at these prices. The market closes quiet and dull at the lower quotation. The shipments over the St. Louis & San Francisco RR. for week ending February 28th were 156 tons, and for week ending March 7th 104 tons.

The *Age of Steel*, under date of St. Louis, March 12th, inst., says:

During the week, about 500 tons of lead changed hands in this market, the best qualities of which sold at 4·55 cents to 4·65 cents, while hard went at about 4·40 cents, and it is rumored that purchases of such were made as low as 4·35 cents. These are much lower prices than any we have reported for some time, and indicate a very dull and depressed condition of the market.

Spelter and Zinc.—The former is quiet with a fair hand-to-mouth consumption going on. We quote Spelter at 5@5½c., and Zinc in sheets at 6⅞@7c.

The *Age of Steel*, under date of St. Louis, 12th inst., says:

Spelter is very quiet, no transactions having occurred during the week that we could hear of. The price of the article may be quoted at 4·75 cents, nominal.

Antimony.—Without feature of note; we quote Cookson's at 15c., Hallett's and Johnson's at 14¾c.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, March 18.

The iron market is still very quiet, but at the same time firm. There is a large amount of pig-iron, rails, etc., being moved, but on previous orders. There are no accumulations of stocks worthy of note.

American Pig.—We learn of no important sales. Although the market is quiet, it is very strong, and stocks are not accumulating. We quote No. 1 Foundry at $25@$26; No. 2 Foundry, $22@$23; and Forge, $20@$21.

Scotch Pig.—The arrivals are moderate, and are being absorbed. Prices are steady both here and in Glasgow. We quote Eglinton at $21½@$22; Glengarnock, $23; Gartsherrie, $23@$23½; and Coltness $24½.

Messrs. John E. Swan & Brothers, of Glasgow, under date of March 4th, 1881, report 120 furnaces in blast, as against 113 at the same time last year. The quantity of iron in Connal & Co.'s stores was 528,067 tons, an increase of 1956 tons for the week. The shipments show a decrease since Christmas of 34,074 tons, as compared with the shipments to the same date in 1880. The imports of Middlesbrough pig-iron for the same period show a decrease of 9740 tons. The following were the quotations of the leading brands of No. 1 pig-iron: Gartsherrie, 58s. 6d.; Coltness, 59s.; Langloan, 58s. 6d.; Summerlee, 58s.; Carnbroe, 55s.; Glengarnock, 55s.; Eglinton, 50s. Middlesbrough pig-iron was quoted as follows, f. o. b.: No. 1 Foundry, 42s. 6d.; No. 2, 40s. 6d.; No. 3, 38s. 6d.; No. 4, 38s.; No. 4 Forge, 37s. 6d.

Rails.—We learn of no business in either iron or steel rails. There are some negotiations under way which will probably be consummated before our next. American steel rails for early delivery are quoted at $64@$65 at mills, and English here at $62@$62½. English iron rails are quoted at $47 here, and American at mills at $48@$50.

Old Rails.—Sales of 2000 tons of Ts. at Philadelphia at $27½, 500 tons to arrive in this city at same figures, and 4000 tons (description not given) at Baltimore, at $28½, for future shipment. We quote Ts at $27½, and D.Hs. $29.

Wrought Scrap is quiet. We quote at $30@$31 from yard.

We publish the following letters from our regular correspondents:

Cincinnati. March 15.

[Specially reported by JACOB TRABER & CO.]

The demand for pig-iron continues fair at prices fully up to quotations, which are as follows:

	Four mos.
No. 1 Hanging Rock Charcoal Pig-Iron.....	$26.50@$27.00
No. 2 " " " "	25.50@ 26.00
No. 1 Tennessee " "	25.50@ 26.00
No. 1 Hanging Rock Coke "	24.50@ 25.00
No. 2 " " " "	23.00@ 23.50
No. 1 Jackson Co. Stone Coal "	20.00@ 23.00
H. R. C. B. Car-Wheels, all Nos.....	40.00@ 42.00
Southern C. B. Car-Wheels, all Nos.....	36.00@ 37.00
Virginia " " "	39.00@ 40.00

Columbus, O. March 15.

[Specially reported by KING, GILBERT & WARNER.]

There has been a moderate demand for pig-iron during the past week. Consumers are, as a rule, supplied for immediate wants and are not willing to buy largely at the advanced prices. Furnace-men, however, do not seem willing to make any concessions to effect sales. The offering for best grades of foundry iron are light.

Louisville. March 15.

[Specially reported by GEORGE H. HULL & Co.]

The market is quiet, but sales are large. There is still a disposition on the part of manufacturers to buy for long delivery ahead. Southern Neutral No. 1 mill is firm at $22 cash, with No. 1 Foundry at $24. Hanging Rock charcoal No. 1 Foundry is selling at $27@$28, while same brands of No. 2 Foundry are bringing as high as $30.50, because of their great strength and value in special castings.

Pittsburg. March. 15.

[Specially reported by A. H. CHILDS.]

During the past week or two, the market has been very quiet, and purchasers have shown little inclination to contract for supplies beyond immediate wants. Bessemer and strong red-short irons are somewhat scarce, and are held at full prices, but the ordinary neutral and cold-short brands are offered freely with prices in buyers' favor.

	4 mos.		4 mos.
No. 1 F'dry..	$25.00@$27.00	M. & White...	$20.00@$22.00
No. 2 " ..	23.50@ 24.00	Hot Blast Ch.	28.00@ 34 00
Gray F'orge..	22.00@ 27.00	Cold Blast W..	34.00@ 42.00

Richmond. March 15.

[Specially reported by ASA SNYDER.]

The sales of pig-iron in March show a marked improvement on transactions of two preceding months. The large number of buildings under construction in the Southern States and demand for mill productions indicate a fine business for the spring and summer months. Prices remain firm without change in last quotations.

John H. Austin & Co.'s Special Market Report.

LONDON, E. C., March 3.

STEEL RAILS.—£6 7s. 6d.@£6 17s. 6d. per ton; very steady market, with large inquiries for 40-pound and other light sections for Mexico, etc. American inquiries also coming forward again rather freely.

IRON RAILS.—£5 7s. 6d.@£5 15s. per ton; quiet market, the chief inquiries being for 30, 35, and 40 lb. rails.

BAR IRON.—£5 5s. per ton for ordinary assortments.

OLD RAILS.—Market rather firmer, as lower quotations of last week have brought forward orders, which, however, can not be executed at the limits attached, being equal to 82s. per ton for O.D.Hs., c. i. f. United States ports.

HEAVY WROUGHT SCRAP-IRON.—Nominally 70s. per ton, f. o. b.

OLD RAILWAY LEAF SPRING STEEL.—Very quiet at £5 15s. @£6, c. i. f. New York, with very little offering.

OLD CAST-IRON RAILWAY CHAIRS.—43@45s. per ton.

STEEL BLOOMS, 7″ × 7″ AND UPWARD.—Nominally £5 15s.@£6 per ton.

BESSEMER PIG-IRON, Nos. 1, 2, AND 3.—Very dull at 60 @65s. per ton.

SCOTCH PIG-IRON.—Flat market, 48s. 9d. cash.

MIDDLESBROUGH PIG-IRON, No. 3.—Flat, 38s. cash.

COAL TRADE REVIEW.

Anthracite.

NEW YORK, Friday Evening, March 18.

The managers of the several large coal companies had a meeting yesterday, at which it was resolved to work but three days per week during the next fort night. At the same time, it was resolved that there should be no reduction in prices to encourage spring trade, as has usually been the case. The Pennsylvania Coal Company will begin shipments from Newburg next week, at which time it will issue a new circular which will probably comply practically with the prices asked by the other companies. The curtailment that has been decided upon will give some relief, but it will hardly be enough to steady the trade. The feeling at the meeting, however, was one of complete harmony, and if a further curtailment is found necessary, it will be speedily enforced. The public has but little confidence in the sincerity of the companies, and is adopting a rigid hand-to-mouth policy. It is thought that from this cause the spring trade will be light. So many were caught during the past winter with insufficient supplies that what is known as the fall trade will probably begin much earlier than last year. If both the companies and the public continue to pursue the same course as at present, there will be some active scrambling for coal later in the year.

Our statistics show that last week's production was nearly 600,000 tons, or at the rate of over 30,000,000 tons per annum. At the same time, it will be observed that the shipments, as compared with the corresponding period of last year, show an increase of over 1,000,000 tons. It has not been expected that the country would take coal at this rate, and a curtailment does not, therefore, necessarily mean that a bad business is doing.

New orders have been scarce of late, and there has been considerable undercutting in prices, but since the announcement of a curtailment there has been some strength imparted to the market. This, however, will probably be only temporary, as a genuine improvement can only set in when present stocks at the shipping ports and afloat are considerably reduced.

The production of anthracite coal last week was 592,888 tons, as compared with 342,951 tons for the corresponding week of 1879. The total production from January 1st to March 12th was 4,687,291 tons, as against 3,617,342 tons for the like period of last year, showing an increase this year of 1,069,949 tons.

Bituminous.

We learn of no new business of great importance. There is a much better supply of this coal, and prices are not so strong as they were. The action of the anthracite companies will benefit the bituminous trade,

STATISTICS OF COAL PRODUCTION.

Comparative statement of the production of anthracite coal for the week ending March 12th, and years from January 1st:

TONS OF 2240 LBS.	1881. Week.	1881. Year.	1880. Week.	1880. Year.
Wyoming Region.				
D. & H. Canal Co..	92,969	687,225	46,755	612,049
D. L. & W. RR. Co.	96,840	783,651	58,739	626,056
Penn. Coal Co.....	21,623	199,409	16,493	125,137
L. V. RR. Co.....	37,283	209,036	17,532	191,214
P. & N. Y. RR. Co..	1,425	8,642	410	2,354
C. RR. of N. J.....	53,589	425,569	20,005	250,736
	303,729	2,313,532	159,934	1,807,546
Lehigh Region.				
L. V. RR. Co.....	97,549	783,530	44,822	474,976
C. RR. of N. J.....	38,863	341,269	32,362	330,202
S. H. & W. B. RR..	.....	676	.....	7,841
	136,412	1,125,475	77,184	813,019
Schuylkill Region.				
P. & R. RR. Co.....	132,577	1,046,699	91,154	885,932
Shamokin & Lykens Val.....	18,582	189,601	13,860	102,409
	151,159	1,236,300	105,014	988,341
Sullivan Region.				
St Line&Sul.RR.Co.	1,588	11,984	819	8,436
Total	592,888	4,687,291	342,951	3,617,342
Increase.....	249,937	1,069,949	.....	.....
Decrease	.....	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Total same time in 1876	1,668,892	tons.
" " " 1877	2,890,858	"
" " " 1878	2,420,214	"
" " " 1879	3,862,734	"
" " " 1880.	3,617,342	"

Statement showing Receipts and Shipments of Coal to and from Chicago, from January 1st to March 1st, 1881.

RECEIPTS.

	Jan. tons.	Feb. tons.	Total rec'ts Anthracite. tons.	Total rec'ts Bitumin's. tons.
Rec'ts by Rail of Bituminous Coal.	179,709	153,128	.....	.....
Rec'ts by Rail of Anthracite Coal.	44,150	45,932	.....	.....
	223,859	199,060	90,082	332,837

SHIPMENTS.

	Tons.
January	61,126
February	50,377
Total tons	111,503
Receipts by rail of anthracite coal from January 1st to March 1st. 1881	90,082
Corresponding period 1880	88,916
Increase by rail, 1881	1,166
Receipts by rail of bituminous coal from January 1st to March 1st, 1881	332,837
Corresponding period 1880	270,139
Increase by rail, 1881	62,698
Total receipts of all kinds of coal, including coke, from January 1st to March 1st, 1881	422,919
Corresponding period 1880	359,055
Increase in 1881	63,764
Total shipments of coal by lake and rail from January 1st to March 1st, 1881	110,503
Corresponding period 1880	111,812
Decrease in 1881	1,309

The receipts of coke are included in the receipts of bituminous coal. H. PRATT, Secretary.

Belvidere-Delaware Railroad Report for the week ending March 12th:

	Week.	Year. 1881.	Year. 1880.
Coal for shipment at Coal Port (Trenton)	.....	.....	.....
Coal for shipment at South Amboy	19,417	108,245	78,022
Coal for distribution	16,535	168,754	86,834
Coal for company's use	2,881	22,600	20,355

The decrease in shipments of Cumberland Coal over the Cumberland Branch and Cumberland & Pennsylvania Railroad amounts to 86,570 tons, as compared with the corresponding period in 1880.

The Production of Bituminous Coal for the week ending March 12th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lbs	35,188	272,905
Barclay Region, Pa.		
Barclay RR., tons of 2240 lbs.	9,590	91,303
Broad Top Region, Pa.		
Huntingdon & Broad Top RR.	5,342	47,300
East Broad Top	1,947	14,261
Clearfield Region, Pa.		
Snow Shoe	1,444	13,501
Tyrone and Clearfield	46,196	361,859
Alleghany Region, Pa.		
Pennsylvania RR.	7,250	54,629
Pittsburg Region Pa		
West Penn RR	7,076	70,164
Southwest Penn. RR.	197	8,087
Penn & Westmoreland gas-coal, Pa. RR.	15,931	175,839
Pennsylvania RR.	10,654	129,333

The Production of Coke for the week ending March 12th, and year from Jan. 1st.

Tons of 2000 lbs.	Week.	Year.
Penn. RR. (Alleghany Region)	2,382	19,988
West Penn RR.	2,148	18,444
Southwest Penn. RR.	30,902	301,709
Penn. & Westmoreland Region, Pa. RR.	3,530	34,802
Pittsburg, Penn. RR.	10,571	83,828
Snow Shoe (Clearfield Region)	131	1,687
Total	49,664	460,458

FREIGHTS.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to March 18th, 1881.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnston, South Amboy, Hoboken, and Weehawken.
Alexandria	1.15	1.00	.....
Annapolis	.75	.....	.....
Apponang	.....	.....	.....
Baltimore	.60	.....	.....
Bangor	.....	.....	.....
Bath, Me	.....	2.00	.....
Beverly	.....	.....	.....
Boston, Mass	1.72@1.75	1.90	1.15
Bristol	.....	.....	.....
Bridgeport, Conn.	.....	1.70	.....
Brooklyn	.....	.....	.....
Cambridge, Mass.	.....	.....	.....
Cambridgeport	.....	.....	.....
Charleston	.....	.....	.....
Charlestown	1.50	.....	.....
Chelsea	1.85	.....	.....
City Point	.....	.....	.....
Com. Pt., Mass.	.....	.....	.....
E. Boston	.....	.....	.....
East Cambridge	.....	.....	.....
E.Gr'nwich,R. I.	.....	.....	.....
Fall River	.....	1 75	.80
Fredericksb'g,Va	1.05	.....	.....
Galveston	.....	.....	.....
Georgetown, D.C.	.....	.....	.....
Gloucester	.....	.....	.....
Hartford	.....	.....	.....
Hackensack	.....	.....	.....
Lambertville	.....	.....	.....
Lynn	2.00	.....	.....
Marblehead	.....	.....	.....
Medford	.....	.....	.....
Millville	.....	.....	.....
Milton	.....	.....	.....
Newark, N. J	.....	1.75	.....
New Bedford	1.40@1.45	1.80	.....
Newburyport	.....	.....	.....
New Haven	.....	1.75	.60
New London	.....	1.75	.....
Newbern	.....	.....	.....
Newport	.....	.....	.....
New York	.....	1.65	.....
Norfolk, Va	.....	.85	.....
Norwich	.....	1.90	.80
Norwalk, Conn	.....	1.75	.....
Petersburg	.....	.....	.....
Philadelphia	.....	.60	.....
Portland	.....	1.90	.....
Portsmouth, Va.	.....	.....	.....
Portsmouth, N.H.	.....	2.10	.....
Providence	.....	.....	80.
Quincy Point	.....	.....	.....
Richmond, Va.	1.00	.....	.....
Rockland	.....	.....	.....
Rockport	.....	.....	.....
Roxbury	.....	.....	.....
Saco	.....	.....	.....
Sag Harbor	.....	.....	.....
Salem, Mass.	.....	2.00	.....
Saugus	.....	.....	.....
Savannah	.....	.....	.....
Somerset	.....	.....	.....
Staten Island	.....	.....	.....
Trenton	.....	1.00	.....
Troy	.....	.....	.....
Wareham	.....	1.80	.....
Washington	1.00@1.25	.....	.....
Weymouth	.....	.....	.....
Williamsbg, N.Y.	.....	.....	.....
Wilmington, Del.	.....	.60	.....
Wilmington, N.C.	.....	.....	.....

* And discharging. † And discharging and towing. ‡ 3c. per bridge extra. § Alongside. ‖ And towing up and down. ¶ And towing. ** Below bridge.

DIVIDENDS.

OFFICE OF THE HOMESTAKE MINING COMPANY, 18 Wall street, New York, March 12th, 1881.

DIVIDEND No. 31.

The regular monthly dividend of thirty cents per share has been declared for February, payable at the office of the transfer agents, Wells, Fargo & Co., 65 Broadway, on the 25th inst. Transfer-books close on the 19th inst.

H. B. PARSONS, Assistant Secretary.

INDIAN QUEEN MINING AND MILLING COMPANY.

A MONTHLY DIVIDEND from the net earnings of the mines for February (No. 10), of

TWO PER CENT UPON THE PAR VALUE OF THE STOCK,

will be paid March 19th, 1881, at the office of the Company, 7 Exchange place, Boston, Mass.

By order of the Directors.

C. C. LANE, Secretary.

OFFICE OF THE GREEN MOUNTAIN GOLD MINING COMPANY, OF CALIFORNIA, No. 18 Wall street, New York, March 12th, 1881.

DIVIDEND NO. 21.

The Board of Trustees have this day declared a dividend of FIVE CENTS per share for the month of February, on the capital stock of this company, payable on the 25th inst.

Transfer-books close on the 18th, and reopen on the 28th of March. J. JAY PARDEE, Secretary.

OFFICE OF THE GOLD STRIPE GOLD MINING COMPANY OF CALIFORNIA, No. 18 Wall street, New York, March 12, 1881.

DIVIDEND No. 3.

The Board of Trustees have this day declared a quarterly dividend of FIFTEEN CENTS per share on the capital stock of this Company, for the quarter ending February 28th, payable on the 30th day of March, 1881.

Transfer-books close on the 23d inst., and reopen on the 1st of April, 1881.

J. JAY PARDEE, Secretary.

OFFICE OF THE STARR-GROVE MINING COMPANY, No. 2 Nassau street, corner Wall street, New York, March 16th, 1881.

DIVIDEND No. 5.

The Board of Trustees have this day declared the regular monthly dividend of $20,000, being ONE PER CENT ON THE CAPITAL STOCK of the Company, or TEN CENTS PER SHARE, payable on the 31st inst., at this office.

The transfer-books will be closed from the 25th to the 31st inclusive. JOHN R. BOTHWELL, Secretary.

WM. S. CLARKE, President.

SAN FRANCISCO, 15th March, 1881.

THE FATHER DE SMET CONSOLIDATED GOLD MINING COMPANY

HAS DECLARED DIVIDEND No. 10,

of Twenty-Five cents per share, payable at the office of

LAIDLAW & CO., 14 WALL ST., NEW YORK,

1st April, 1881, on all stock issued from the New York Agency.

Transfer-books will close on the 21st inst., and reopen on the 2d April. H. DEAS,
2t-Mar19-26. Secretary.

DIVIDEND No. 19.—LA PLATA MINING AND SMELTING COMPANY.—Office of La Plata Mining and Smelting Company, of Leadville, Colo., 53 Broadway, Rooms 12 and 13, New York, March 17th, 1881.

DIVIDEND NO. 19.

The Board of Trustees have this day declared a dividend of SEVEN AND ONE HALF CENTS per share (par value $10), on the capital stock, payable on Friday, April 1st prox., at the office of the company. Transfer-books will close on Friday, March 25th, and reopen Saturday, April 2d, 1881.

Statement of the financial condition of the Company.

Working capital	$100,000.00
February 1, 1881—Balance surplus account	53,940.83
March 1, 1881—Net earnings month of February	15,340.20
	$169,281.03
Dividend of 7½ cents per share, 200,000 shares.	15,000.00
Balance March 1, 1881	$154,281.03

D. OLYPHANT TALBOT, Assistant Secretary.

The New Pulsometer

Will save over Fifty per cent in Fuel with greater duty than any other Steam Pump in the market; also, more Simple, Durable, and Compact. Specially adapted to Mining, Railroads, Steamboats, Paper Mills, Chemical and Gas Works, Tanneries, Breweries, Sugar Refineries, and other Manufactures. For Draining Quarries, Cellars, Plantations, and various other purposes. For Contractors use it has NO EQUAL.

Send for book giving full description, reduced prices, and many letters of commendation from leading manufacturers and others throughout the country who are using them.

PULSOMETER STEAM PUMP CO.,

P. O. Box No. 1533. Office, No. 83 John St., New York City

NATIONAL TUBE WORKS COMPANY,

BOSTON MASS.—NEW YORK, 104 JOHN ST. WM. S. EATON Treasurer. CHICAGO, 159 LAKE ST.—McKEESPORT, PA

WROUGHT-IRON TUBES and PIPES,

ALL SIZES AND WEIGHTS, WITH SCREW AND COUPLING, OR INSERTED JOINTS, FOR

BOILERS, WELLS, WATER, GAS, AND STEAM PIPES.

VENTILATING AND PUMP COLUMNS FOR MINES. MACK'S PATENT INJECTOR, FOR FEEDING BOILERS.

Boston Blower Co.'s Exhaust and Pressure Blowers,

THE ONLY BLOWER WITH INTERCHANGEABLE PARTS

PROSPECTING.

CALIFORNIA STAMP MILL.

"THE MOUNTAINEER."

THIS MILL,

Though so Light and Portable, is capable of crushing ordinary hard

QUARTZ ROCK,

on sixty six-inch drops per minute through a screen.

No. 6 Slot,

to amount to two hundred and fifty to three hundred lbs. per hour.

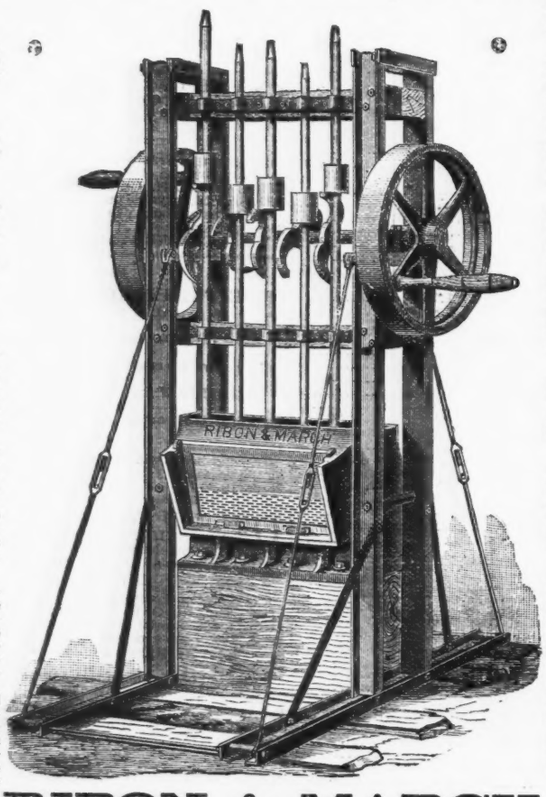
PRICE, F. O. B., $350.

Weights

OF PARTS.

Iron Frame (in sections)	500 lbs.
Mortar (feed 1¾x24 in.)	500 lbs.
Cam Shaft	40 lbs.
Fly Wheel Pulleys (30x3½ in. each)	150 lbs.
Cams	20 lbs.
Stems	34 lbs.
Tappets	6 lbs.
Heads	3 lbs.
Shoes (4¼ in. face)	20 lbs.
Dies (4½ in. face)	25 lbs.

The above cut represents our Portable Prospecting Five-Stamp Mill. It weighs but two thousand pounds complete, ready for operation. It is put together with bolts and nuts instead of rivets, and can be readily taken apart, and transported anywhere on the backs of animals, as the heaviest piece does not weigh over five hundred pounds.



The Mortars are made of two styles—one for ordinary stamping or crushing, and the other with flaring back and front ledges to support inside copper plates for amalgamating in the battery.

It is mounted in a wrought-iron frame, and has two balance wheels arranged to be used with hand, horse or other available power. All wearing parts, such as Cams, Tappets, Heads, Shoes, and Dies, are made of best Cast Steel.

In ordering, state which mortar is required.

3-16 inch Copper Plate, fitted, price, $5 per set of two.

Also, if desirable, we furnish ⅛-inch copper plate for outside amalgamating table, cut and fitted to order, 31c. per lb.; in sheets squared to order, 28c. per lb.

Small iron amalgamating pan, with revolving copper fingers, suitable when dismounted for a Clean-Up-Pan, and small 150.oz. Retort, $45.

Horse-Power Machine, available for One or Two Horses, price $50.

3-inch belting, two-ply rubber, per foot, 20c. Single leather, per foot, 27c.

Address,

RIBON & MARCH,

Manufacturers of Mining Machinery,

First, Second & Provost Sts., Jersey City, N. J., P. O. Box 364.

Our Illustrated Catalogue, over 100 pages, with illustrations of all our several manufactures, will be sent upon application.

THE GUTTA PERCHA & RUBBER M'F'G COMPANY,

MANUFACTURERS OF

Vulcanized Rubber Fabrics,

Belting, Packing, Hose, Valves and Tubings,

And all Articles of India Rubber for Mechanical Purposes.

Patent Carbolized Steam Fire Engine Hose.

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A. SPADONE, Pres't. BENJ. P. SMITH, Treas.

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Steam Power & Hand PRESSES.

Front Brick,
Ornamental Brick,
Red Brick,
Fire Brick,
Artificial Fuel,
Building Blocks.

Send for Catalogue.

Wm. L. Gregg,

402 Walnut St., Philadelphia.

INTERESTING

TO

BUSINESS MEN.

BATES, REED & COOLEY,
343, 345, & 347 Broadway,
NEW YORK, Jan. 8, 1881.

S. F. HAYWARD, Esq.,
General Agent Babcock Fire Extinguisher,
497 Broadway, New York.

MY DEAR SIR:

I am very happy to inform you of the most excellent service rendered by your apparatus in my store last night. The sub-cellar and basement were filled with smoke, at about 8 o'clock in the evening. Some of the employés were at work in the basement at the time. A search being made, fire was discovered immediately about the boilers, waste paper and other material taking fire. The fire patrol was immediately notified, but before they arrived, the fire was entirely extinguished by use of two (2) Babcock Extinguishers. They worked rapidly and with perfect success, which places them in better favor with my house than ever before. I consider them of great value and think no business house should be without them.

[Signed.]

L. M. BATES,

For BATES, REED & COOLEY.

LEFFEL WATER-WHEELS,

With Recent Improvements.

Prices Greatly Reduced.

8000 in Successful Operation.

FINE NEW PAMPHLET

Sent Free to those interested.

JAMES LEFFEL & CO.,
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